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# California Alternate Assessment Alignment Study: Mathematics and English Language Arts/Literacy Final Report

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# California Alternate Assessment Alignment Study: Mathematics and English Language Arts/Literacy

## *Table of Contents*

# Table of Contents (Continued)

## List of Tables

# Table of Contents (Continued)

## List of Tables

# Table of Contents (Continued)

## List of Tables

# Table of Contents (Continued)

## List of Tables

# Table of Contents (Continued)

## List of Tables



## List of Figures

# Executive Summary

The Human Resources Research Organization (HumRRO) is the independent evaluator for the California Assessment of Student Performance and Progress (CAASPP). As part of its three-year evaluation, HumRRO was contracted by the California Department of Education (CDE) to conduct an external, independent alignment study (review and analysis) of the California Common Core State Standards (CCSS) and the California Alternate Assessment (CAA) for mathematics and English language arts/literacy (ELA). An alignment review provides one form of evidence supporting the validity of the state assessment system that includes the academic content standards and each assessment. The CAA is an alternate assessment designed for students with the most significant cognitive disabilities. Because of their cognitive disabilities, these students would not be appropriately assessed by the general statewide assessment program. The assessment is designed to evaluate students' achievement of the alternate achievement standards—the Core Content Connectors (CCCs)—that are linked to the CCSS.

The National Center and State Collaborative (NCSC) developed the CCCs for mathematics and ELA. These CCCs are content targets linked to the CCSS. The CCCs are less complex than the CCSS, focusing on the main academic content in each subject and grade. The CCCs illustrate the necessary knowledge and skills needed to reach the learning targets within the CCSS and the knowledge and skills needed in each grade. The CCCs identify priorities in each content area to guide the instruction for students in this population and the content of the alternate assessment.

HumRRO completed the alignment study for the 2016 alternate assessments for mathematics and ELA grades three through eight and grade eleven. We trained and collected alignment rating data from 32 subject matter experts (California teachers and special education experts) during an in-person workshop conducted July 25–27, 2017.

California's alternate assessments are two-stage adaptive tests, where performance on an early stage determines the level of the second stage. In 2016, each student who took a CAA received 21 operational test items, plus one of three tiers, each of which consisted of six additional items. Tier 1, 2, or 3 was selected based on student performance on the initial 21 items. For example, students who performed well on the first 21 items were then administered a more difficult set of six items than those who performed less well. Thus, each student responded to 27 total items, with the final set of six items selected adaptively.

## *Alignment Study Design and Method*

The method presented here reflects an argument-based approach in which we present claims that should be met, to an acceptable degree, for (1) the CCCs to be considered adequately aligned to the CCSS and (2) for the CAAs to be considered adequately aligned to the CCCs. The specific statistics and analyses used for this study borrow much from Webb's (1997, 1999, 2005) work on assessment-to-standards alignment. We also

borrowed aspects of the Links for Academic Learning (LAL) alternate alignment method developed by Flowers, Wakeman, Browder, and Karvonen (2007). However, we diverge from both of these methods when appropriate to accommodate the specific alignment challenges inherent in the CAAs. The criteria considered from the LAL method are listed below:

- ***Criterion 1: Age Appropriate*** – The content of the CCC and the CAA item is referenced to the student's assigned grade level (based on chronological age). For example, and CAA items address content in a context appropriate to the student (e.g., high school students are not presented content using a popular television character suitable for kindergarten students).
- ***Criterion 2: Standards Fidelity***
  - **2a: Content Centrality** – The target content of the CCCs maintains fidelity with the content of the associated CCSS, and the CAA items maintain fidelity with the content of the selected CCC.
  - **2b: Performance Centrality** – The performance expectations of the CCCs maintain fidelity with the specified performance expectations in the associated CCSS, and the performance expectations required of the CAA items maintain fidelity with the performance expectations of the selected CCC. For example, both the CCC and the CCSS or both the CAA item and the CCC require the student to select, identify, compare, analyze, or evaluate.
- ***Criterion 3: Content Coverage***
  - **3a: Content Representation** – The content of CCCs and CAA items align.
  - **3b: Category Representation** – CAA items represent domains (e.g., The Number System, Geometry, Statistics & Probability, Reading: Literacy, Reading: Informational, Writing) as indicated in the test blueprint.
  - **3c: Depth of Knowledge (DOK) Representation** – The cognitive complexity of CAA items represents the cognitive complexity of the content in the CCCs.
  - **3d: Category Reporting** – Domains are sufficiently measured.
- ***Criterion 4: Content Differentiation*** – There is variation in the content across grade spans in each subject (e.g., mathematics grades 3–5, mathematics grades 6–8, ELA grades 3–5, ELA grades 6–8) for the CCCs and CAA items.
- ***Criterion 5: Performance Accuracy*** – The potential barriers to demonstrating what students know and can do are minimized in the assessment to increase measurement accuracy of student performance. For example, CAA items allow students, regardless of disability, the opportunity to demonstrate the knowledge required to answer an item, and CAA items can be modified to help some students demonstrate the knowledge required to answer an item without changing the construct measured.

The LAL method described above, which includes aspects of Webb's method, is appropriate for providing evidence to substantiate the research claims outlined in the next section. The LAL method has been used previously as one piece of evidence for

federal peer review that resulted in a “meets or exceeds requirements” classification for alternate assessments.

## Research Claims

The “claims” described in this study may be considered parallel to “research questions” in other studies that are part of the overall independent evaluation of CAASPP. They are stated as claims here because alignment studies are typically used as components of larger validity arguments. Using common terminology throughout the validity argument will make it more readily understood, and any findings from this study can be easily included in that larger body of evidence. Expressing the claims as research questions, they include:

1. To what extent do data support the claim that the CCCs are related to the CCSS?
2. To what extent do data support the claim that the CAA test items represent the intended content?
3. To what extent do data support the claim that the CAA test items are of similar cognitive complexity to the CCCs?
4. To what extent do data support the claim that the CAAs are sufficiently reliable for reporting?

A brief description of the methods used to investigate each of the research questions/claims follows.

**Claim No. 1. The Core Content Connectors are related to the Common Core State Standards.**

The CCCs and Essential Understandings were developed by the National Center and State Collaborative (NCSC). We reviewed the link between the CCCs and the CCSS as described in the CAA Blueprints to substantiate Claim No. 1.

Data Collected to Substantiate Claim No. 1

To investigate this claim, we compared the CCCs in the CAA Blueprint to the CCSS. We collected two types of data from educator panelists for Claim No. 1. For the first set of data, panelists indicated whether the CCC (1) represents the same content as the content required in the CCSS (Criterion 2a), (2) represents the same performance expectations as the CCSS (Criterion 2b), (3) is grade-level appropriate (Criterion 1), and (4) shows suitable differentiation of CCC content across grades within a panel group (Criterion 4). The second set of data consisted of panelists determining consensus ratings of cognitive complexity (depth of knowledge [DOK]) for the CCCs and the CCSS. The consensus DOKs of the linked CCC and CCSS were then analyzed for similarity (Criterion 2b).

**Claim No. 2. The California Alternate Assessment items represent the intended content.**

The next step in the alignment study was to examine how the CAA items represented the CCCs. Each unique item from both versions and all tiers was matched to the content objective(s) at the NCSC prioritized CCC level. The three NCSC documents referenced (2014a, 2014b, 2014c) are (1) CCSS, Prioritized Mathematics CCCs, and Essential Understandings, (2) CCSS, Prioritized English Language Arts CCCs, and Essential Understandings: Reading, and (3) CCSS, Prioritized English Language Arts CCCs, and Essential Understandings: Writing. It is possible that an item may match to more than one CCC. The item-to-standards match is described in terms of the proportion of items that match CCCs and the proportion of CCCs that are linked to at least one item.

Data Collected to Substantiate Claim No. 2

All data for Claim No. 2 came from panelists matching items to CCCs. Panelists indicated whether the item matched to one or more CCCs and the degree of match between the item and the selected CCC using a 3-point scale (1 = no match, 2 = weak match, or 3 = strong match) (Criterion 3a). Items receiving ratings of 1 or 2 required panelists to include notes to explain the content being measured by the item that was not covered by the CCC. Additionally, panelists indicated whether the CAA item (1) is grade-level appropriate (Criterion 1) and (2) shows suitable differentiation of CCC content for CAA items across grades within a panel group (Criterion 4). Based on panelists' selected CCC and degree of match for each item, the extent to which items represented the domains as listed in the CAA Blueprint was evaluated (Criterion 3b).

**Claim No. 3. The California Alternate Assessment items are of similar cognitive complexity to the CCCs.**

Panelists provided DOK ratings for each CAA item. This allowed for direct comparisons of item cognitive complexity to that of the matched CCC and allowed determination of consistency between item and CCC DOKs.

Data Collected to Substantiate Claim No. 3

Panelists indicated a DOK (see Appendix A) rating for each test item. The DOK assigned by panelists to each item and CCC were compared and determined to be (1) less than the complexity of the CCC, (2) equal to the complexity of the CCC, or (3) greater than the complexity of the CCC. Items with more than one matching CCC were coded separately for each matched CCC. Data are reported by comparing each item's DOK to that of its matched CCC (Criterion 3c). We report the proportion of items in each category of matching. Panelists also indicated whether the CAA item represents the same performance expectations as the CCSS (Criterion 2b) and whether the CAA items allow students to demonstrate their knowledge without changing the construct measured (Criterion 5).

**Claim No. 4. The California Alternate Assessments are sufficiently reliable for reporting.**

In typical alignment studies, this criterion is represented by a simple count of items by domain. We recommend, instead, that reliability statistics be collected from the testing vendor for each domain. Reliability can be readily computed and should be verified before reporting, but it is not sufficient to simply count items because reliability estimates can vary greatly due to factors other than number of items.

Data Collected to Substantiate Claim No. 4

We did not collect these data. Reliability estimates can be found in the CAASPP CAA Technical Report 2015–16 Administration (ETS, 2017) for the overall test scores, averaged across versions and tiers (Criterion 3d).

## Scope of Alignment Evaluations

Two distinct types of alignment evaluations were performed for this study: (1) the CCCs linked to the CCSS for mathematics and ELA and (2) the CAA items, for mathematics and ELA, linked to the CCCs for mathematics and ELA. Both alignment evaluations were conducted using California educators and HumRRO staff familiar with alignment studies.

## Panelists

Panelists were recruited by HumRRO from California educators who either participated in standards setting for the CAAs or expressed interest in participating in a variety of CDE studies. Because this study involved the alternate assessment, we focused on selecting special education teachers and a limited number of general education content specialists. Each of the six panels (mathematics grades 3–5, mathematics grades 6–8, mathematics grade 11, ELA grades 3–5, ELA grades 6–8, ELA grade 11) consisted of four or five special education teachers with at least one general education teacher or content specialist, totaling five to six individuals per panel. Panelists were assigned to panel groups based on their experience in the subject area and grade level.

## *Core Content Connectors to Common Core State Standards Alignment Summary*

Instead of reviewing all CCCs for mathematics and ELA, panelists reviewed only the CCCs listed in the CAA Blueprints for mathematics and ELA. First, they evaluated the alignment of content and performance expectations between the blueprint CCCs and the corresponding CCSS for mathematics and ELA. Second, panelists evaluated the progression of content from one grade to the next. Lastly, panelists rated the appropriateness of the CCC content for this population of students.

The acceptability criteria applied to panelists' ratings for judging the degree of alignment between blueprint identified CCCs and the CCSS for mathematics and ELA were as follows:

- **Criterion 1 – Age Appropriate**
  - On average across panelists, 90 percent or more of the CCCs were rated as "adapted" or "neutral." Adapted" means the CCC content is adapted from, or linked to, age/grade-level content. "Neutral" means the CCC content is not age-bound, it is appropriate at any age or grade. Tables 9–10 contain the numeric results.
- **Criterion 2a – Content Centrality**
  - On average across panelists, 90 percent or more of the CCCs were linked to the CCSS for mathematics or ELA. Tables 11–12 contain the numeric results.
- **Criterion 2b – Performance Centrality**
  - On average across panelists, 90 percent or more of the CCCs were rated comparable in performance expectations to the CCSS for mathematics or ELA. Tables 17–18 contain the numeric results.
- **Criterion 4 – Content Differentiation**
  - Dimension ratings for Broader, Deeper, Prerequisite, and New were "clear" or "partial,'' and the Identical dimension was rated "no" (there are 5 dimensions total, and reporting was done by dimension—with notes to explain which dimension did not meet the criterion). "Broader" indicates higher grade CCCs reflect broader application of target skill/knowledge. "Deeper" indicates higher grade CCCs reflect deeper mastery of the target skill/knowledge. "Prerequisite" indicates lower grade CCCs target a prerequisite skill for mastery of the higher grade CCC. "New" indicates the higher grade has a new skill or knowledge unrelated to a skill or knowledge covered at prior grades. "Identical" indicates a higher grade CCC appears identical to one of the lower grade CCCs. Tables 19–20 contain the annotated results including panelists' consensus comments for each rating.

Table 1 provides summary conclusions on the alignment of the blueprint-identified CCCs to their respective CCSS for mathematics or ELA. For each criterion, a "yes" indicates the criterion was met. When the criterion is not met, the cell contains a "no" and the numeric results in parenthesis.

*Table 1. Summary of Alignment of Grade-Level Core Content Connectors to CCSS, by Criterion*

| Subject and Grade | Criterion 1: Age Appropriate Is the content of the CCCs age appropriate? (90% or >) | Criterion 2a: Content Centrality Is the CCC content aligned with the associated CCSS? (90% or >) | Criterion 2b: Performance Centrality Are the CCCs comparable in performance expectations to the CCSS? (90% or >) | Criterion 4: Content Differentiation Does CCC content differ across grade levels? [a] |
|---|---|---|---|---|
| Math 3 | Yes | Yes | Yes | NA |
| Math 4 | Yes | Yes | Yes | NA |
| Math 5 | Yes | Yes | Yes | NA |
| Math 3 – 5 | NA | NA | NA | Yes |
| Math 6 | Yes | Yes | Yes | NA |
| Math 7 | Yes | Yes | Yes | NA |
| Math 8 | Yes | Yes | Yes | NA |
| Math 6 – 8 | NA | NA | NA | Yes |
| Math 11 | Yes | Yes | Yes | NA |
| ELA 3 | Yes | Yes | No (83%) | NA |
| ELA 4 | Yes | Yes | Yes | NA |
| ELA 5 | Yes | Yes | No (84%) | NA |
| ELA 3 – 5 | NA | NA | NA | Yes |
| ELA 6 | Yes | Yes | Yes | NA |
| ELA 7 | Yes | Yes | Yes | NA |
| ELA 8 | Yes | Yes | Yes | NA |
| ELA 6 – 8 | NA | NA | NA | No (4) |
| ELA 11 | Yes | Yes | Yes | NA |

[a] "Yes" indicates all five dimensions received an acceptable rating. The number in parentheses after a "no" indicates the number of dimensions with an acceptable rating.
Note: NA means analysis is not applicable. Percentages from tables cited in the body of the report are rounded to whole numbers here.

## *California Alternate Assessment Item Alignment Summary*

Tables 2 and 3 provide summary conclusions on the alignment of the CAA mathematics and ELA assessments to the CCCs for mathematics and ELA, respectively. For each criterion, a "yes" indicates the criterion was met. When the criterion is not met, the cell contains a "no" and the numeric results in parentheses.

The acceptability criteria applied to the alignment between CAA items and CCCs are as follows for Table 2:

- **Criterion 1 – Age Appropriate**
  - On average across panelists, 90 percent or more of the items were rated as "adapted" or "neutral." Tables 22–23 contain the numeric results.
- **Criterion 2b – Performance Centrality**
  - On average across panelists, 90 percent or more of the items were rated as "some" or "all." Tables 24–25 contain the numeric results.
- **Criterion 4 – Content Differentiation**
  - Dimension ratings should be "clear" or "partial" and the Identical dimension should be "no." Tables 58–59 contain the annotated results including panelists' consensus comments for each rating.
- **Criterion 5 – Performance Accuracy**
  - On average across panelists, 90 percent or more of the items should be accessible to different disability groups in general. Tables 60–61 contain the numeric results.
  - On average across panelists, 90 percent or more of the items should be amenable to accommodations or supports. Tables 62–63 contain the numeric results.

In general, the California Alternate Assessments for mathematics and ELA exhibited good overall alignment; however, there are areas for improvement. Panelists found the CCCs and assessment items for all subjects and grades to be age appropriate and amenable to accommodations or supports. They determined that, for the most part, the assessment items maintain fidelity with the performance expectations in the CCCs. Content differentiation ratings at the item level agree with the overall CCC content differentiation ratings for these grades. However, panelists rated items in ELA grades three through five as identical in terms of content. This indicates that items focused on the same type of content, without items becoming broader or deeper, irrespective of grade. In ELA grades six through eight, panelists rated items as having no new skill or knowledge assessed that was unrelated to a skill or knowledge from a prior grade.

Ratings provided by panelists for all grades and subjects except for mathematics grades three, four, and eleven found 100 percent of the items to be accessible to various disability groups. In grade four, a small number of items were rated as not accessible, falling at just under the 90 percent acceptability level. For mathematics grades three and eleven, panelists rated around two-thirds of the items as being accessible to different disability groups in general. Typically, for items rated not accessible, panelists referred to students with visual impairments not being able to access the item content.

*Table 2. Summary of Alignment of CAA Grade-Level Items to Core Content Connectors, by Criterion*

| Subject and Grade | Criterion 1: Age Appropriate Is the content of the items age appropriate? (90% or >) | Criterion 2b: Performance Centrality Are items comparable in performance expectations to the CCCs? (90% or >) | Criterion 4: Content Differentiation Does item content differ across grade levels? [a] | Criterion 5: Performance Accuracy – Accessibility Are items accessible to different disability groups? (90% or >) | Criterion 5: Performance Accuracy – Accommodations Are items amenable to accommodations or supports? (90% or >) |
|---|---|---|---|---|---|
| Math 3 | Yes | Yes | NA | No (67%) | Yes |
| Math 4 | Yes | Yes | NA | No (85%) | Yes |
| Math 5 | Yes | Yes | NA | Yes | Yes |
| Math 3 – 5 | NA | NA | Yes | NA | NA |
| Math 6 | Yes | Yes | NA | Yes | Yes |
| Math 7 | Yes | Yes | NA | Yes | Yes |
| Math 8 | Yes | Yes | NA | Yes | Yes |
| Math 6 – 8 | NA | NA | Yes | NA | NA |
| Math 11 | Yes | Yes | NA | No (60%) | Yes |
| ELA 3 | Yes | Yes | NA | Yes | Yes |
| ELA 4 | Yes | Yes | NA | Yes | Yes |
| ELA 5 | Yes | Yes | NA | Yes | Yes |
| ELA 3 – 5 | NA | NA | No (4) | NA | NA |
| ELA 6 | Yes | Yes | NA | Yes | Yes |
| ELA 7 | Yes | Yes | NA | Yes | Yes |
| ELA 8 | Yes | Yes | NA | Yes | Yes |
| ELA 6 – 8 | NA | NA | No (4) | NA | NA |
| ELA 11 | Yes | Yes | NA | Yes | Yes |

[a] "Yes" indicates all five dimensions received an acceptable rating. The number in parentheses after a "no" indicates the number of dimensions with an acceptable rating.
Note: NA means content differentiation analysis is not applicable. Percentages from tables cited in the body of the report are rounded to whole numbers here.

The acceptability criteria applied to the alignment between CAA items and CCCs are as follows for Table 3:

- **Criterion 3a – Content Representation**
  - On average across panelists, 90 percent or more of the items were rated as "partially" or "fully" aligned. Tables 26–27 contain the numeric results.
- **Criterion 3b – Category Representation**
  - For each CAA Blueprint domain, the percent of items for each domain is within +/- 10 percent of the target percentages listed in the CAA Blueprint. Tables 28–41 contain the numeric results.
    - Domains for mathematics in grades three through five are Operations & Algebraic Thinking, Number & Operations in Base Ten, Number & Operations – Fractions, Measurement & Data, and Geometry.
    - Domains for mathematics in grades six and seven are Ratios & Proportional Relationships, The Number System, Expressions & Equations, Geometry, and Statistics & Probability.
    - Domains for mathematics in grade eight are The Number System, Expressions & Equations, Fractions, Geometry, and Statistics & Probability.
    - Domains for mathematics in grade eleven are Number & Quantity: The Real Number System, Number & Quantity: Quantities, Algebra: Creating Equations, Functions: Interpreting Functions, Geometry: Similarity, Right Triangles, & Trigonometry, and Statistics & Probability: Interpreting Categorical & Quantitative Data.
    - Domains for ELA in grades three and four are Reading: Literary, Reading: Informational, Reading: Vocabulary, Reading: Foundation, and Writing.
    - Domains for ELA in grade five through eight and eleven are Reading: Literary, Reading: Informational, Reading: Vocabulary, and Writing.
- **Criterion 3c – Depth of Knowledge (DOK) Representation**
  - On average across panelists, 50 percent or more of the items were at the same or higher DOK level as the CCC. Tables 56–57 contain the numeric results.

Guide to reading Table 3:

- The first three columns identify the assessment being described. The leftmost column identifies the assessment's grade and subject. The second column indicates the assessment version (there were two versions, or forms, of each assessment administered). The third column indicates the tier level for the assessment (each assessment included three tiers for each form). The row that begins "Math 3" represents the mathematics assessment for grade three, the first version or form of the assessment, and Tier 1. The next two rows only differ from this row in the six unique tier items.

- The next column “Criterion 3a,” shows a “yes” if the criterion of 90 percent or more of items rated as partially or fully aligned is met while a “no” indicates the criterion was not met and the value in parentheses indicates the numeric result. For grade three math, we see that assessments for Tiers 2 and 3 meet the 90 percent threshold, but the Tier 1 assessment falls just short, with 89 percent of items rated as aligned for version 1 and 86 percent rated as aligned for version 2.
- The fifth column in the table, “Criterion 3b,” indicates whether the proportions of items indicated in the CAA Blueprint match the proportions of items by domain as rated by panelists. A “yes” in the cell indicates all domains were +/- 10 percent of the proportion in the blueprint. Otherwise, the number of domains within +/- 10 percent out of the total number of domains is shown. For math grade three, version 1, Tier 1, we see that this criterion is met for two of three domains. This means that for two of the domains, aggregations of the panelists’ indications of item domain were within +/- 10 percent of the proportion indicated in the blueprint. For example, if the blueprint indicated that 33 percent of items were to be linked to the first domain, then panelists’ results would indicate that between 23 percent and 43 percent of items were linked to that domain.
- The final column, “Criterion 3c,” shows a “yes” if the criterion of 50 percent or more items rated at the same or higher DOK level as the matched CCC is met while a “no” indicates the criterion was not met and the value in parentheses indicates the numeric result.

We found mixed results on content coverage. Panelists found the items for each grade and subject to be fully aligned with the CCCs except for grades three and five in mathematics and one version in ELA grade three. For these three grades, 86 to 89 percent of items were fully or partially aligned with the CCC identified by panelists, narrowly missing the acceptability criterion. These grades had the greatest percentage of items for which panelists stated they were not able to find a CCC matching the content of the item. For all grades and subjects except for grade eleven ELA, panelists rated 50 percent or more of the items as having the same or higher depth of knowledge (DOK) level as the identified CCC. Panelists found the cognitive complexity of assessment items for grade eleven ELA to be substantially lower than the complexity of the CCCs for that grade.

*Table 3. Summary of Content Coverage of CAA Grade-Level Items by Version and Tier, by Criterion*

| Subject and Grade | Version | Tier | Criterion 3a: Items Represent Intended Content Are items aligned with CCCs? (90% or >) | Criterion 3b: Items Represent Intended Domains Do items adequately represent domains? | Criterion 3c: DOK Representation Do items reflect the range of DOK in the CCCs? (50% or >) |
|---|---|---|---|---|---|
| Math 3 | 1 | 1 | No (89%) | 2 of 3 domains | Yes |
| Math 3 | 1 | 2 | Yes | 2 of 3 domains | Yes |
| Math 3 | 1 | 3 | Yes | 2 of 3 domains | Yes |
| Math 3 | 2 | 1 | No (86%) | Yes | Yes |
| Math 3 | 2 | 2 | Yes | Yes | Yes |
| Math 3 | 2 | 3 | Yes | Yes | Yes |
| Math 4 | 1 | 1 | Yes | 2 of 3 domains | Yes |
| Math 4 | 1 | 2 | Yes | Yes | Yes |
| Math 4 | 1 | 3 | Yes | Yes | Yes |
| Math 4 | 2 | 1 | Yes | 2 of 3 domains | No (49%) |
| Math 4 | 2 | 2 | Yes | Yes | Yes |
| Math 4 | 2 | 3 | Yes | Yes | Yes |
| Math 5 | 1 | 1 | No (89%) | 2 of 3 domains | Yes |
| Math 5 | 1 | 2 | No (89%) | 1 of 3 domains | Yes |
| Math 5 | 1 | 3 | Yes | 2 of 3 domains | Yes |
| Math 5 | 2 | 1 | No (86%) | Yes | Yes |
| Math 5 | 2 | 2 | No (86%) | Yes | Yes |
| Math 5 | 2 | 3 | No (89%) | Yes | Yes |
| Math 6 | 1 | 1 | Yes | Yes | Yes |
| Math 6 | 1 | 2 | Yes | Yes | Yes |
| Math 6 | 1 | 3 | Yes | Yes | Yes |
| Math 6 | 2 | 1 | Yes | Yes | Yes |
| Math 6 | 2 | 2 | Yes | Yes | Yes |
| Math 6 | 2 | 3 | Yes | Yes | Yes |
| Math 7 | 1 | 1 | Yes | 4 of 5 domains | Yes |
| Math 7 | 1 | 2 | Yes | Yes | Yes |
| Math 7 | 1 | 3 | Yes | Yes | Yes |
| Math 7 | 2 | 1 | Yes | Yes | Yes |
| Math 7 | 2 | 2 | Yes | Yes | Yes |
| Math 7 | 2 | 3 | Yes | Yes | Yes |
| Math 8 | 1 | 1 | Yes | Yes | Yes |
| Math 8 | 1 | 2 | Yes | Yes | Yes |
| Math 8 | 1 | 3 | Yes | Yes | Yes |
| Math 8 | 2 | 1 | Yes | 3 of 4 domains | Yes |
| Math 8 | 2 | 2 | Yes | Yes | Yes |

| Subject and Grade | Version | Tier | Criterion 3a: Items Represent Intended Content Are items aligned with CCCs? (90% or >) | Criterion 3b: Items Represent Intended Domains Do items adequately represent domains? | Criterion 3c: DOK Representation Do items reflect the range of DOK in the CCCs? (50% or >) |
|---|---|---|---|---|---|
| Math 8 | 2 | 3 | Yes | Yes | Yes |
| Math 11 | 1 | 1 | Yes | Yes | Yes |
| Math 11 | 1 | 2 | Yes | Yes | Yes |
| Math 11 | 1 | 3 | Yes | Yes | Yes |
| Math 11 | 2 | 1 | Yes | Yes | Yes |
| Math 11 | 2 | 2 | Yes | Yes | Yes |
| Math 11 | 2 | 3 | Yes | Yes | Yes |
| ELA 3 | 1 | 1 | Yes | 3 of 5 domains | Yes |
| ELA 3 | 1 | 2 | Yes | 3 of 5 domains | Yes |
| ELA 3 | 1 | 3 | No (89%) | 4 of 5 domains | Yes |
| ELA 3 | 2 | 1 | Yes | 3 of 5 domains | Yes |
| ELA 3 | 2 | 2 | Yes | 2 of 5 domains | Yes |
| ELA 3 | 2 | 3 | Yes | 3 of 5 domains | Yes |
| ELA 4 | 1 | 1 | Yes | 3 of 5 domains | Yes |
| ELA 4 | 1 | 2 | Yes | 2 of 5 domains | Yes |
| ELA 4 | 1 | 3 | Yes | 3 of 5 domains | Yes |
| ELA 4 | 2 | 1 | Yes | 3 of 5 domains | No (49%) |
| ELA 4 | 2 | 2 | Yes | 3 of 5 domains | Yes |
| ELA 4 | 2 | 3 | Yes | 3 of 5 domains | Yes |
| ELA 5 | 1 | 1 | Yes | 2 of 4 domains | Yes |
| ELA 5 | 1 | 2 | Yes | 2 of 4 domains | Yes |
| ELA 5 | 1 | 3 | Yes | 2 of 4 domains | Yes |
| ELA 5 | 2 | 1 | Yes | 2 of 4 domains | Yes |
| ELA 5 | 2 | 2 | Yes | 2 of 4 domains | Yes |
| ELA 5 | 2 | 3 | Yes | 2 of 4 domains | Yes |
| ELA 6 | 1 | 1 | Yes | 2 of 4 domains | Yes |
| ELA 6 | 1 | 2 | Yes | 3 of 4 domains | Yes |
| ELA 6 | 1 | 3 | Yes | 2 of 4 domains | Yes |
| ELA 6 | 2 | 1 | Yes | 2 of 4 domains | Yes |
| ELA 6 | 2 | 2 | Yes | Yes | Yes |
| ELA 6 | 2 | 3 | Yes | 3 of 4 domains | Yes |
| ELA 7 | 1 | 1 | Yes | 3 of 4 domains | Yes |
| ELA 7 | 1 | 2 | Yes | 3 of 4 domains | Yes |
| ELA 7 | 1 | 3 | Yes | 3 of 4 domains | Yes |
| ELA 7 | 2 | 1 | Yes | 3 of 4 domains | Yes |
| ELA 7 | 2 | 2 | Yes | Yes | Yes |
| ELA 7 | 2 | 3 | Yes | 3 of 4 domains | Yes |
| ELA 8 | 1 | 1 | Yes | 2 of 4 domains | Yes |

| Subject and Grade | Version | Tier | Criterion 3a: Items Represent Intended Content Are items aligned with CCCs? (90% or >) | Criterion 3b: Items Represent Intended Domains Do items adequately represent domains? | Criterion 3c: DOK Representation Do items reflect the range of DOK in the CCCs? (50% or >) |
|---|---|---|---|---|---|
| ELA 8 | 1 | 2 | Yes | 2 of 4 domains | Yes |
| ELA 8 | 1 | 3 | Yes | 3 of 4 domains | Yes |
| ELA 8 | 2 | 1 | Yes | 2 of 4 domains | Yes |
| ELA 8 | 2 | 2 | Yes | 2 of 4 domains | Yes |
| ELA 8 | 2 | 3 | Yes | 2 of 4 domains | Yes |
| ELA 11 | 1 | 1 | Yes | 2 of 4 domains | No (36%) |
| ELA 11 | 1 | 2 | Yes | 2 of 4 domains | No (37%) |
| ELA 11 | 1 | 3 | Yes | 3 of 4 domains | No (38%) |
| ELA 11 | 2 | 1 | Yes | 2 of 4 domains | No (34%) |
| ELA 11 | 2 | 2 | Yes | 2 of 4 domains | No (35%) |
| ELA 11 | 2 | 3 | Yes | 2 of 4 domains | No (36%) |

Note: Percentages from tables in the body of the report are rounded to whole numbers.

The largest content coverage discrepancy occurred between the percentages of items per domain in the CAA Blueprint compared with the percentage of items in the domain associated with the CCC identified by panelists. Panelist ratings indicate one or two of the domains in a majority of grades in both mathematics and ELA had more than a 10 percent difference. This was especially salient for the Writing domain in ELA. Panelists assigned an item a CCC in the Reading domain instead of one in the Writing domain in several instances. Since panelists were trained to identify the CCC they felt best covered the content of the item, this situation for ELA may be indicative of panelists believing the item measured more reading content than writing content, which may be contrary to the CCC assigned to the item by item writers. Panelists' assignments of items to CCCs matched the domains in the CAA Blueprints for mathematics more consistently.

## *Recommendations*

Based on our findings, HumRRO makes the following recommendations to potentially improve the alignment of the California Alternate Assessment for mathematics and ELA.

- ***Review the mathematics items in the grade three and eleven assessments for potential barriers to disability groups.*** Panelists indicated that many grade three and eleven items exhibited barriers, particularly to students with visual and/or hearing impairments. It is important to note that assessment items were developed to include an alternate presentation allowing students to access the content of the item without modifying the construct of the item. However, panelists' comments for some items and the assessment overall stated that the

alternate text did not provide enough information to answer the item without being able to view graphic stimuli or response options. We recommend CDE content experts working with the testing contractor review alternate text for mathematics items in grades three and eleven on the versions reviewed in this alignment study, as well as the versions developed for the 2017–18 school year, to ensure the alternate text is sufficient—particularly for students with visual and/or hearing impairments—to access the content of the item without changing the construct.

- ***Review the depth of knowledge match between assessment items and Core Content Connectors for grade eleven ELA.*** Panelists rated the grade eleven ELA items at lower DOK levels in comparison to the DOK level of the corresponding CCC. We recommend CDE work with the testing contractor to review the grade eleven items on the versions reviewed in this alignment study as well as the versions developed for the 2017–18 school year to ensure items are written to a range of DOK levels to reflect the content depth indicated by the connectors. We suggest CDE obtain the number of items at each DOK level in the bank from the testing contractor to determine whether item development goals need to be amended to include more item development at certain DOK levels.
- ***Review the percent of items per domain on the assessment and compare to the percent of items per domain in the CAA Blueprint.*** In this alignment study, panelists were tasked with assigning a CCC that best matches the content of the assessment items. Particularly on the ELA assessments, panelists' assignment of CCC to item resulted in the percent of items per domain varying from the percent of item targets listed in the CAA Blueprint. We recommend reviewing the percent of items per domain based on the CCC assigned during item development and the percent of items per domain in the CAA Blueprint to determine if they are comparable (differ by less than 10%). If they are comparable, we recommend additional professional development for teachers on the CCCs for ELA, especially regarding how a reading item can primarily measure writing content. If the comparison is not comparable (differs by 10% or more), then additional target checks may need to be implemented during test construction to ensure CAA Blueprint targets are met.
- ***Request that the testing contractor include version- and tier-level reliability information in the CAASPP CAA Technical Report.*** While not directly evaluated for this study, we reference information related to test reliability from psychometric analyses found in the CAASPP CAA Technical Report 2015–16 Administration (2017). This information supports the claim that the CAA is sufficiently reliable for test reporting and is a more reasonable indicator of reliability than item counts (see Webb's 1997, 1999, 2005 categorical concurrency alignment criteria). The reported reliability estimates in the technical report are strong, ranging from 0.74 to 0.89 (alpha coefficients). However, the estimates are aggregated across versions and tiers. We recommend expanding this information to ensure that reliability estimates are not substantially different by version or tier or significantly impacted by restriction of range in the tiers.

## *Summary Statement*

This study was framed to answer four key research questions (claims). The study collected and examined evidence to respond directly to three of those questions. Question four was not answered in this report, but key validity evidence should be available in the CAA Technical Report by Educational Testing Service (ETS) supporting the CAA for mathematics and ELA. Summary findings are presented below.

1. To what extent do data support the claim that the Core Content Connectors for the California Alternate Assessment are highly related to the Common Core State Standards?

This study showed strong alignment between the CCSS and CCCs for all grades/subjects. Panelists indicated clear alignment between the content and performance expectation requirements of the CCCs and the CCSS. The CCCs were judged to be age appropriate and well-differentiated across grades.

2. To what extent do data support the claim that the California Alternate Assessment items represent the intended content?

There was strong alignment between the test items and CCCs for all grades and subjects. Nearly all items were matched to content from the CCCs. Items were well distributed across the domains. They largely represented the proportions indicated by the test blueprints. In some instances, the panelists' indications of item content yielded differing proportions of items by domain than the blueprint. These instances varied by grade and subject.

3. To what extent do data support the claim that the California Alternate Assessment items are of similar cognitive complexity to the Core Content Connectors?

Item DOKs were reflective of CCC depth of knowledge (DOK), except for grade eleven ELA, in which item DOKs were rated lower than the DOK of the CCCs. In all other grades and subjects, most of the items had DOK ratings at or above the DOK ratings of their corresponding CCCs.

4. To what extent do data support the claim that the California Alternate Assessments are sufficiently reliable for reporting?

While not directly investigated during the alignment workshops, the CAA Technical Report indicates reasonable reliability estimates for overall scores across grades and subjects.

# Chapter 1: Introduction

The California Department of Education (CDE) requested an external, independent alignment study (review and analysis) of the California Common Core State Standards (CCSS) and the California Alternate Assessment (CAA) for mathematics and English language arts/literacy (ELA). An alignment review provides one form of evidence supporting the validity of the state assessment system that includes the academic content standards and each assessment. The CAA is an alternate assessment designed for students with the most significant cognitive disabilities. Because of their cognitive disabilities, these students would not be appropriately assessed by the general statewide assessment program. The assessment is designed to evaluate the links among the CAA and the alternate achievement standards—the Core Content Connectors (CCCs)—that are linked to the CCSS.

The Human Resources Research Organization (HumRRO) was contracted to complete the alignment of the 2015–16 alternate assessments for mathematics and ELA grades three through eight and grade eleven for CDE. Our alignment approach was designed to indicate the extent to which the alternate assessment items are related to the CCCs and the CCSS. In addition, we evaluated whether the CCCs are (1) age appropriate and (2) differ in breadth and depth across grade levels and item sets.

The National Center and State Collaborative (NCSC) developed the CCCs for mathematics and ELA. These CCCs are content targets linked to the CCSS. The CCCs are less complex than the CCSS, focusing on the main academic content in each subject and grade. The CCCs illustrate the necessary knowledge and skills needed to reach the learning targets within the CCSS and the knowledge and skills needed in each grade. The CCCs identify priorities in each content area to guide the instruction for students in this population and the content for the alternate assessment.

California's alternate assessments are two-stage adaptive tests, where performance on an early stage determines the level of the second stage. In 2016, each student who took a California Alternate Assessment received 21 operational test items, plus one of three tiers, each of which consisted of six additional items. Tier 1, 2, or 3 was selected based on student performance on the initial 21 items. Students who performed well on the first 21 items were then administered a more difficult set of six items than those who performed less well. Thus, each student responded to 27 total items, with the final set of six items selected adaptively.

# Chapter 2: Alignment Study Design and Method

The method presented here reflects an argument-based approach, similar to a validity argument. We present claims that should be met, to an acceptable degree, for the California Alternate Assessment (CAA) for mathematics and English language arts/literacy (ELA) to be considered adequately aligned to content standards. We describe the evidence collected in support of those claims. If the claims are all supported, the overall alignment argument is supported. If there are areas where the evidence is weak or the claims are not supported, these represent potential threats to the alignment argument, which is also a threat to the overall validity argument.

The specific statistics and analyses used for this study borrow much from Webb's (1997, 1999, 2005) work on assessment-to-standards alignment. We also borrowed aspects of the Links for Academic Learning (LAL) alternate alignment method developed by Flowers et al. (2007). However, we diverge from both of these methods when appropriate to accommodate the specific alignment challenges inherent in the CAAs. The criteria considered from the LAL method are listed below:

- ***Criterion 1: Age Appropriate*** – The content of the CCC and the CAA item is referenced to the student's assigned grade level (based on chronological age). For example, CCCs and CAA items address content in a context appropriate to the student (e.g., high school students are not presented content using a popular television character suitable for kindergarten students).
- ***Criterion 2: Standards Fidelity***
  - **2a: Content Centrality** – The target content of the CCCs maintains fidelity with the content of the associated Common Core State Standards (CCSS), and the CAA items maintain fidelity with the content of the selected CCC.
  - **2b: Performance Centrality** – The performance expectations of the CCCs maintain fidelity with the specified performance expectations in the associated CCSS, and the performance expectations required of the CAA items maintain fidelity with the performance expectations of the selected CCC. For example, both the CCC and the CCSS or both the CAA item and the CCC require the student to select, identify, compare, analyze, or evaluate.
- ***Criterion 3: Content Coverage***
  - **3a: Content Representation** – The content of CCCs and CAA items align.
  - **3b: Category Representation** – CAA items represent domains (e.g., The Number System, Geometry, Statistics & Probability, Reading: Literacy, Reading: Informational, Writing) as indicated in the test blueprint.
  - **3c: Depth of Knowledge (DOK) Representation** – The cognitive complexity of CAA items represents the cognitive complexity of the content in the CCCs.
  - **3d: Category Reporting** – Domains are sufficiently measured.

- ***Criterion 4: Content Differentiation*** – There is a level of differentiation of difficulty of content by subject across grade spans (e.g., mathematics grades 3–5, mathematics grades 6–8, ELA grades 3–5, ELA grades 6–8) for the CCCs and CAA items.
- ***Criterion 5: Performance Accuracy*** – The potential barriers to demonstrating what students know and can do are minimized in the assessment to increase measurement accuracy of student performance. For example, CAA items allow students, regardless of disability, the opportunity to demonstrate the knowledge required to answer an item, and CAA items can be modified to help some students demonstrate the knowledge required to answer an item without changing the construct measured.

The LAL method described above, which includes aspects of Webb's method, is appropriate for providing evidence to substantiate the research claims. The criteria evaluated for each claim are delineated in the next section. The LAL method has been used previously as one piece of evidence for federal peer review that resulted in a "meets or exceeds requirements" classification for alternate assessments.

## *Research Claims*

The "claims" described in this study may be considered parallel to "research questions" in other studies that are part of the overall independent evaluation of CAASPP. They are stated as claims here because alignment studies are typically used as components of larger validity arguments. Using common terminology throughout the validity argument will make it more readily understood, and any findings from this study can be easily included in that larger body of evidence. Expressing the claims as research questions, they include:

1. To what extent do data support the claim that the CCCs are related to the CCSS?
2. To what extent do data support the claim that the CAA test items represent the intended content?
3. To what extent do data support the claim that the CAA test items are of similar cognitive complexity to the CCCs?
4. To what extent do data support the claim that the CAAs are sufficiently reliable for reporting?

A brief description of the methods used to investigate each of the research questions/claims follows. Data were collected from a group of subject matter experts (California teachers and special education experts) meeting in-person for a two- to three-day workshop.

**Claim No. 1. The Core Content Connectors are related to the Common Core State Standards.**

The CCCs and Essential Understandings were developed by the National Center and State Collaborative (NCSC). The CCCs are less complex than the CCSS and focus on the main academic content in each subject and grade. The CAA Blueprints indicate the basic core content domains, the CCCs, and the Essential Understanding for each CCSS. We reviewed the link between the CCCs and the CCSS as described in the CAA Blueprints to substantiate Claim No. 1.

Data Collected to Substantiate Claim No. 1

To investigate this claim, we compared the CCCs in the CAA Blueprint to the CCSS. We collected two types of data from educator panelists for Claim No. 1. For the first set of data, panelists indicated whether the CCC (1) represented the same content as the content required in the CCSS (Criterion 2a), (2) represented the same performance expectation as the CCSS (Criterion 2b), (3) is grade-level appropriate (Criterion 1), and (4) suitable differentiation of CCC content across grades within a panel group (Criterion 4). The second set of data consisted of panelists determining consensus cognitive complexity (depth of knowledge [DOK]) ratings for the CCCs and the CCSS. The consensus DOKs of the linked CCC and CCSS were then analyzed for similarity (Criterion 2b).

**Claim No. 2. The California Alternate Assessment items represent the intended content.**

The next step in the alignment study was to examine how the CAA items represented the CCCs. Each unique item from both versions and all tiers was matched to the content objective(s) at the NCSC prioritized CCC level. The three NCSC documents referenced are (1) CCSS, Prioritized Mathematics CCCs, and Essential Understandings, (2) CCSS, Prioritized English Language Arts CCCs, and Essential Understandings: Reading, and (3) CCSS, Prioritized English Language Arts CCCs, and Essential Understandings: Writing. It is possible that an item may match to more than one CCC. The item-to-standards match is described in terms of the proportion of items that match CCCs and the proportion of CCCs that are linked to at least one item. These comparisons are similar to Webb's (1997, 1999, 2005) range and balance alignment criteria.

Data Collected to Substantiate Claim No. 2

All data for Claim No. 2 came from panelists matching items to CCCs. Using a customized spreadsheet, panelists indicated whether the item matched to one or more CCCs. Panelists also indicated the degree of match between the item and the selected CCC using a 3-point scale (1 = no match, 2 = weak match, or 3 = strong match) (Criterion 3a). Items receiving ratings of 1 or 2 required panelists to include notes to explain the content being measured by the item that was not covered by the CCC.

Additionally, panelists indicated whether the CAA item (1) is grade-level appropriate (Criterion 1) and (2) suitable differentiation of CCC content across grades within a panel group (Criterion 4). Based on panelists' selected CCC and degree of match for each item, the extent to which items represent the domains as listed in the test blueprint was evaluated (Criterion 3b).

**Claim No. 3. The California Alternate Assessment items are of similar cognitive complexity to the Core Content Connectors.**

Panelists provided cognitive complexity ratings for each CAA test item. This allowed for direct comparisons of item cognitive complexity to that of the matched CCC and permitted determination of consistency between items and standards DOK.

Data Collected to Substantiate Claim No. 3

Panelists indicated a DOK (see Appendix A) rating for each test item. The DOK assigned by panelists to each item and the DOK assigned to each CCC were compared and determined to be (1) less than the complexity of the CCC, (2) equal to the complexity of the CCC, or (3) greater than the complexity of the CCC. Items with more than one matching CCC were coded separately for each matched CCC. Data are reported by comparing each item's cognitive complexity to that of its matched CCC (Criterion 3c). We report the proportion of items in each category of matching. This analysis is similar to Webb's (1997, 1999, 2005) DOK consistency alignment criterion. Webb's criterion requires at least 50 percent of the items be at or above the cognitive complexity of the matched CCC. Panelists also indicated whether the CAA item represented the same performance expectation as the CCSS (Criterion 2b) and whether the CAA items allow students to demonstrate their knowledge without changing the construct measured (Criterion 5).

**Claim No. 4. The California Alternate Assessments are sufficiently reliable for reporting.**

In typical alignment studies, this criterion is represented by a simple count of items by domain. If there are more than six items, the test is considered adequate (see Webb's 1997, 1999, 2005 categorical concurrency alignment criteria). We recommend, instead, that reliability statistics be collected from the testing vendor for each domain. Reliability can be readily computed and should be verified before reporting, but it is not sufficient to simply count items because reliability estimates can vary greatly due to factors other than number of items.

Data Collected to Substantiate Claim No. 4

We did not collect these data. Reliability estimates can be found in the CAASPP CAA Technical Report. (Criterion 3d)

## Scope of Alignment Evaluations

Two distinct types of alignment evaluations were performed for this study: (1) the CCCs linked to the CCSS for mathematics and ELA and (2) the CAA items, for mathematics and ELA, linked to the CCCs for mathematics and ELA. Both alignment evaluations were conducted using California educators and HumRRO staff familiar with alignment studies.

## Panelists

Panelists were recruited by HumRRO from California educators who either participated in standards setting for the CAAs or expressed interest in participating in a variety of CDE studies. Because this study involved the alternate assessment, we focused on selecting special education teachers and a limited number of general education content specialists. Contact information for the teacher pool was provided by ETS and CDE. Each of the six panels (mathematics grades 3–5, mathematics grades 6–8, mathematics grade 11, ELA grades 3–5, ELA grades 6–8, ELA grade 11) consisted of four or five special education teachers with at least one general education teacher or content specialist, totaling five to six panelists per panel. Panelists were assigned to panel groups based on their experience in the subject area and grade level. Table 4 presents the characteristics of the panelists.

## Training

An essential aspect of alignment is training for both panelists and HumRRO facilitators so they are familiar with the method and the ratings that must be made. Each alignment study will likely be new to the panelists, but facilitators have conducted other alignment studies previously. However, alignment workshops do not occur weekly nor are all studies the same, so it is important to train even experienced alignment facilitators on the nuances of each study.

Facilitators attended a two-hour training session that included a presentation of the California assessment system, the alignment process, and examples of panelist rating documents. The alignment steps for facilitators were summarized in a Facilitator Instructions document (see appendix A). Facilitators participated in a detailed walk-through of the Facilitator Instructions document with specific procedural and anecdotal guidance to be provided to panelists.

*Table 4. Professional and Demographic Characteristics of Panelists*

| Demographic Information | Subcategories | Math Grade 3–5 Panelists | Math Grade 6–8 Panelists [a] | Math High School Panelists | ELA Grade 3–5 Panelists | ELA Grade 6–8 Panelists | ELA High School Panelists | Total Panelists |
|---|---|---|---|---|---|---|---|---|
| Experience | 1–5 years | 1 | 1 | 2 | 3 | 1 | 0 | 8 |
| Experience | 6–15 years | 3 | 4 | 0 | 1 | 3 | 2 | 13 |
| Experience | More than 15 years | 1 | 1 | 3 | 1 | 2 | 3 | 11 |
| Gender | Female | 4 | 3 | 5 | 5 | 4 | 4 | 25 |
| Gender | Male | 1 | 3 | 0 | 0 | 2 | 1 | 7 |
| Ethnicity | White | 3 | 4 | 1 | 5 | 3 | 2 | 18 |
| Ethnicity | Black/African American | 0 | 1 | 2 | 0 | 0 | 1 | 4 |
| Ethnicity | Hispanic/Latino | 2 | 0 | 0 | 0 | 1 | 0 | 3 |
| Ethnicity | Asian | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Ethnicity | Multi/Other | 0 | 0 | 2 | 0 | 0 | 1 | 3 |
| Current Position | Alt Assess Coordinator | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Current Position | Special Ed Coordinator | 0 | 0 | 0 | 1 | 3 | 2 | 6 |
| Current Position | Special Ed [b] Teacher | 3 | 4 | 4 | 3 | 3 | 5 | 22 |
| Current Position | Gen Ed Teacher | 3 | 2 | 3 | 1 | 2 | 3 | 14 |
| Current Position | Other | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Region | Northern | 1 | 3 | 3 | 2 | 2 | 2 | 13 |
| Region | North Central | 0 | 0 | 0 | 1 | 1 | 0 | 2 |
| Region | South Central | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Region | Southern | 3 | 3 | 2 | 2 | 3 | 3 | 16 |

[a] One panelist in group did not provide ethnicity.

[b] Panelists indicated they taught both special education and general education students or have multiple positions (e.g., Special Education Teacher and Testing Coordinator)

Panelists' training was conducted in two ways at the workshop: (1) general alignment familiarization training on day one of the workshop as a full group, and (2) targeted procedural training in their panel groups prior to starting each alignment activity. The full group training focused on the California assessment system and included information specific to the CAA requirements, the CCCs, and recent changes that required the current alignment study. The training also covered the roles of CDE, ETS, HumRRO, and panelists; the definition of alignment; why alignment is important; the alignment process; cognitive complexity; and the rating forms used in the study. The in-group training focused on specific review processes, rating definitions, and calibration activities to reinforce panelists' shared understanding. During the general and targeted training, panelists were reminded that their role was to provide independent judgment using their expert knowledge.

Specific ratings and tasks were completed in a step-wise fashion to limit the cognitive load for panelists and to ensure mutual understanding of rating terms. The tasks were broken down to allow panelists to make only a few distinct ratings at a time, rather than addressing several complex tasks at once. This helped assure mutual understanding of the ratings among the panelists and supported the fidelity of the ratings throughout the workshop. Ratings or processes that required panelists to reach consensus were intentionally done prior to individual ratings when possible. This allowed panelists to discuss their understanding of the tasks and the ratings they were expected to make and to address inconsistencies in their understanding of the ratings or tasks prior to independent work. In addition, facilitators provided training and practice on each rating task just prior to panelists beginning that task. This task-level training reiterated and expanded the information presented in the full group training, and the practice component allowed panelists to compare their ratings with the rest of the group, to ask questions, and to clarify any potential issues prior to independent work.

Throughout the workshop, facilitators offered general suggestions and comments when appropriate on procedural concerns; however, they emphasized that they would not help in determining the ratings since the panelists were valued as the content experts. Before each alignment step was conducted, facilitators trained panelists on the purpose of the step, the rating code definitions, and entering data in the appropriate rating form. Before allowing panelists to work independently on certain tasks, facilitators had panelists complete the first two to three ratings as a group to ensure that everyone understood the task and rating code definitions. Additionally, facilitators conducted periodic consistency checks to ensure that panelists continued to understand the task throughout the duration of the ratings process. If ratings varied widely across panelists, the facilitator reviewed the task and rating code definitions and informed panelists to alter their ratings only if they felt they had misinterpreted the task and/or rating code definitions.

## Materials

Panelists received several reference materials and rating forms to aid them during the rating process.

***Reference Materials.*** Throughout the workshop, panelists used various reference materials that provided clarification and information to help them make their ratings. Materials included:

- A list of the CCSSs for each of their grades (one copy for the group to reference as needed)
- A list of the prioritized CCCs for each of their grades
- DOK reference sheet that included explanations and examples of each of the six DOK levels (Flowers et al., 2007)
- Panelist instructions (see Appendix A) with detailed information on each rating, including an overview of each task and rating code definitions
- 2016 CAA Directions for Administration (for each subject and grade, one manual for each of the two versions)

***Test Versions.*** For each subject, there were two versions of the initial stage of 21 items on the 2016 CAA. Each version contained common items. The second stage consisted of three tiers with six items each. During the workshop, the panelists reviewed 32 unique initial stage test items (10 common items plus two sets of 11 unique items =32), plus 18 tier items (six unique items in each of the three tiers). This totaled 50 items per grade/subject across all forms and tiers. This allowed us to create essentially two versions of three tiers for each grade/subject. Each test version contained 21 initial stage test items (comprised of 10 common and 11 unique items) plus one tier item set. Each student responded to a total of 27 items. Based on students' scores on the first 21 items, they are assigned one set of six tier items that are either easier than, similar to, or more difficult than the original 21.

To access the test items, panelists received an ordered item booklet (OIB) that contained all test items, formatted as the students would see them, arranged in the order of increasing difficulty for each test version. These booklets included items from all of the three tiers. Panelists also received the Directions for Administration (DFA) booklet used by test administrators to guide administration of the assessments. They contain scripts for administrators, including alternative tests to be read for visually impaired students. Facilitators reviewed all test materials with panelists prior to their use and encouraged experienced test administrators to describe their own experience administering the CAA.

***Rating Forms.*** Panelists used Excel® rating forms, completing two individual tasks (spreadsheets) and five consensus tasks during the two-day workshop for grade eleven and three-day workshop for the lower grade levels.

## Procedures

HumRRO conducted the alignment workshop on July 25–27, 2017 in Rancho Cordova, California. The workshop began with a general session to introduce HumRRO staff, review reimbursement logistics, read and sign affidavits of nondisclosure agreements for the secure materials panelists would review, and conduct 30 minutes of general training. In both the general session and in each panel group, panelists were informed that the alignment reviews were independent from CDE and ETS.

Following the general session, panelists began working in their panel groups. Each panel group was located in a separate room free from distractions from other panel groups. A HumRRO facilitator was assigned to each of the panel groups, and the HumRRO principal investigator supported the facilitators by answering questions and providing further guidance as needed. The principal investigator also made certain that the different groups retained their shared understanding of the alignment method and tasks. After conducting brief introductions, panelists received detailed training on rating procedures by the facilitator responsible for leading the group through each alignment step and received all the necessary materials (referenced in the Materials section). Those steps are listed in Table 5.

*Table 5. Alignment Steps for Panelists Ratings*

| Step | Alignment Step Description |
|---|---|
| 1 | CCSS math & ELA DOK (consensus) |
| 2 | CCC math & ELA DOK (consensus) |
| 3 | CCC to CCSS alignment |
| 4 | CCC content differentiation (if applicable) (consensus) |
| 5 | CAA item alignment |
| 6 | CAA content differentiation (if applicable) (consensus) |
| 7 | Whole test review (consensus) |

***Steps 1 and 2.*** Step 1 in the alignment process was to assign a depth of knowledge (DOK) level to the CCSS for mathematics and ELA that were linked to the corresponding CCCs. Step 2 was similar, assigning a DOK level to the CCCs for each grade/subject listed in the CAA Blueprint. Both steps were completed as consensus ratings. For each step, calibration required panelists to first assign DOK ratings independently, then discuss their ratings. A consensus DOK rating resulted for each CCSS for mathematics and ELA and the corresponding CCCs. In the absence of full group consensus, the majority DOK was used. Additionally, panelists rated to what extent the CCC content was fully aligned with the linked CCSS content for mathematics or ELA.

***Step 3.*** Panelists determined whether the CCC (1) matched the measure of student performance expected in the CCSS for mathematics or ELA and (2) was appropriate for the chronological age at which it was measured (see Figure 1 for a sample rating form, see Appendix E for a detailed description of the figure). Panelists entered their ratings (beginning in the seventh column) individually; no consensus ratings were obtained.

| Domain | NCSC Percen-tage | CAA Percen-tage | Common Core State Standard | Core Content Connector | Essential Understanding | Performance Centrality | Age Appropriate-ness | Notes/ Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | | **Does CCC measure performance level of the CCSS Standard?** | **Is the CCC grade-level appropriate?** | **If you enter a low rating in any dimension, please** |
| | | | | | | N - None, they are different<br>S - Some, partial match<br>A - All, identical | I - Inappropriate<br>N - Neutral<br>A - Adapted | |
| **Operations & Algebraic Thinking** | **10%** | **15%** | **5.OA.B.3** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so .* | **5.PRF.2b1** Generate or select a comparison between two graphs from a similar situation. | Compare two pieces of information provided in a single display. | | | |

*Figure 1. Panelist CCC rating form sample.*

***Step 4.*** Panelists evaluated the CCCs for differentiation of breadth, depth, prerequisite knowledge, and new knowledge across grades. This step was applicable only to the panel groups evaluating mathematics grades three through five, mathematics grades six through eight, ELA grades three through five, and ELA grades six through eight. Panelists indicated whether they found clear, limited, partial, or no differentiation across the grades they reviewed and provided comments regarding their reasoning for their response, with evidence. This task was completed as a consensus rating among panelists.

***Step 5.*** For step 5, panelists conducted an evaluation of the CAA items on several factors similar to the CCC review. For each CAA item, panelists were tasked with identifying the CCC that best matched the content of the item. Panelists were then asked to rate how well the item content was aligned (not, partially, fully) with the identified CCC. If they indicated the alignment was partial or not at all aligned, panelists were asked to describe their reasoning, particularly noting what was required by the item that was not required by the CCC. Panelists could also identify a secondary CCC that matched the item. Panelists continued the CAA item review by (1) assigning a DOK level to the item, (2) determining whether the item measured student performance of the CCC, (3) indicating whether the item was appropriate for the chronological age at which it was measured, and (4) determining whether the item could be modified or supported without changing the meaning or difficulty (see Figure 2 for a sample rating form, see Appendix E for a detailed description of the figure). Panelists entered their ratings beginning in the fifth column (cells without color highlighting).

***Steps 6 and 7.*** Panelists completed steps 6 and 7 as consensus ratings. In step 6, content differentiation was evaluated using the same dimensions and rating levels as the CCC content differentiation review in step 4. However, all panel groups were asked to complete this step with the focus being on the progression of items, as a whole, from one grade to the next. Step 7 provided a “Whole Test” rating in which panelists were asked to determine if, overall, barriers existed for some students with specific disabilities (e.g., blind, deaf) to demonstrate learning on the CAA. As with all the alignment steps, panelists were strongly encouraged to provide brief, but clear, comments if they provided a low rating on any dimension.

| Ordered Item Number | ETS Item Code | DFA Version | DFA Page Number | Enter CCC Code | Enter CCC Code 2 | Quality of Link | Explanation | DOK | Performance Centrality | Age Appropriate | Barriers to Demonstrating Knowledge | | Notes/Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 0 - No link<br>1 - Partially linked<br>2 - Fully linked | If the Quality of Link is 0 or 1, state specifically why the item content does not match a CCC. | Provide DOK:<br>1 - Attention<br>2 - Rote Knowledge, Memorize & Recall<br>3 - Use of Knowledge & Information<br>4 - Comprehension<br>5 - Application<br>6 - Analysis Evaluation | Does item require performance similar to CCSS/CCC?<br>N - None, is different<br>S - Some, partial match<br>A - All, identical | Is item content based on grade-level content?<br>I - Inappropriate<br>N - Neutral<br>A - Adapted | Is item accessible to different disability groups?<br>Y - Yes<br>N - No | Can item be modified or have supports provided without changing meaning or difficulty? | If you enter a low rating for Performance Centrality, Age Appropriate, or Barriers to Demonstrating Knowledge, please explain your reasoning. |
| 15 | Item num | 1 | num | | | | | | | | | | |
| 5 | Item num | 1 | num | | | | | | | | | | |
| 4 | Item num | 1 | num | | | | | | | | | | |
| 45 | Item num | 1 | num | | | | | | | | | | |
| 38 | Item num | 1 | num | | | | | | | | | | |
| 1 | Item num | 1 | num | | | | | | | | | | |
| 19 | Item num | 1 | num | | | | | | | | | | |

*Figure 2. Panelist CAA item rating form sample.*

# Chapter 3: Alignment of Core Content Connectors to Common Core State Standards

## *Overview of Core Content Connectors*

The first challenge for evaluating the alignment of any alternate assessment to traditional standards is to define what the alternate assessment purposefully measures, versus what is intentionally omitted from the assessment. The California Alternate Assessment (CAA) is designed from a test blueprint specifying the assessed Core Content Connectors (CCCs) that items should measure. Items are written to address these blueprint standards. In this alignment study, panelists evaluated the CCCs associated with the Common Core State Standards (CCSS) for mathematics and ELA in the CAA Blueprint for mathematics and for ELA. 30,

The CCCs were developed by the National Center and State Collaborative (NCSC) to focus on the key content at each grade/subject at a lower complexity than the CCSS. From the full list of CCCs, NCSC also developed a prioritized list of CCCs identifying the most relevant knowledge and skills for each grade and subject. The CCCs listed in the CAA Blueprint for mathematics and for ELA comprise a complete list of grade-level prioritized CCCs, as indicated in Tables 6 and 7 below. Additionally, the CAA Blueprint for mathematics and for ELA contains the CCSS linked to each CCC. In most grades for mathematics, there is one CCSS linked to each CCC; however, in grades four, five, and seven, there is one CCSS that is linked to two CCCs. In ELA, there can be more than one CCSS linked to one CCC.

To evaluate the relationship between the CCCs identified in the CAA Blueprint for mathematics and for ELA with the CCSS linked with each CCC, panelists rated the age appropriateness, content centrality, and performance centrality of the CCCs.

*Table 6. Number of Blueprint Standards Compared to CCCs for Mathematics*

| Grade | Number of Blueprint CCCs | Number of Prioritized CCCs | Percent of CCCs Represented on CAA | Number of CCSS Linked to Blueprint CCCs |
|---|---|---|---|---|
| 3 | 10 | 10 | 100.00 | 10 |
| 4 | 10 | 10 | 100.00 | 9 |
| 5 | 10 | 10 | 100.00 | 9 |
| 6 | 10 | 10 | 100.00 | 10 |
| 7 | 10 | 10 | 100.00 | 9 |
| 8 | 10 | 10 | 100.00 | 10 |
| 11 | 10 | 10 | 100.00 | 10 |

*Table 7. Number of Blueprint Standards Compared to CCCs for ELA*

| Grade | Number of Blueprint CCCs | Number of Prioritized CCCs | Percent of CCCs Represented on CAA | Number of CCSS Linked to Blueprint CCCs |
|---|---|---|---|---|
| 3 | 12 | 12 | 100.00 | 14 |
| 4 | 12 | 12 | 100.00 | 14 |
| 5 | 10 | 10 | 100.00 | 12 |
| 6 | 12 | 12 | 100.00 | 13 |
| 7 | 10 | 10 | 100.00 | 12 |
| 8 | 11 | 11 | 100.00 | 13 |
| 11 | 11 | 11 | 100.00 | 13 |

For criteria 1, 2a, and 2b below, we calculated criterion statistics by first counting the number of CCC ratings at each rating category (e.g., “inappropriate,” “neutral,” “adapted”) per panelist. Next, we calculated the mean percentages of ratings across panelists. For example, Table 8 shows for grade three mathematics the CCCs rated by five panelists and the statistics calculated for each panelist, the number of CCCs rated as “inappropriate,” “neutral,” and “adapted” and the total number of CCCs rated by each panelist are counted. Next, the counts of the ratings at each category across panelists are summed in the numerator and denominator, producing the values in the Equation row. These values are used to obtain the mean rating for each category across panelists, which is then converted to the mean percentage for each category.

*Table 8. Mean Percentage of Mathematics CCC Evaluations Rated as Age Appropriate Across Panelists – Grade Three Calculation*

| | Counts of CCC Evaluations, Per Panelist, Rated as Inappropriate | Counts of CCC Evaluations, Per Panelist, Rated as Neutral | Counts of CCC Evaluations, Per Panelist, Rated as Adapted |
|---|---|---|---|
| Panelist A | 0/10 | 1/10 | 9/10 |
| Panelist B | 0/9 | 0/9 | 9/9 |
| Panelist C | 0/10 | 0/10 | 10/10 |
| Panelist D | 0/10 | 0/10 | 10/10 |
| Panelist E | 0/10 | 10/10 | 0/10 |
| Equation | 0/49 | 11/49 | 38/49 |
| Mean | 0.00 | 0.2245 | 0.7755 |
| Percentage | 0.00 | 22.45 | 77.55 |

## Criterion 1: Age Appropriate

Age appropriateness pertains to the developmental level of the content included in the CCCs. For this evaluation, panelists were asked whether the content of the CCCs is appropriate for the age and grade level indicated. Several response options were possible:

Adapted = Linked to grade-level content
Neutral = Content is not age-bound and is appropriate at any age
Inappropriate = Content is off-grade level

For this criterion, we would expect at least 90 percent of the CCCs, on average across panelists, rated as "adapted" or "neutral." This minimum level was established by HumRRO after referencing the Links for Academic Learning (LAL) method, which does not specify a minimum acceptable level for age appropriateness. As shown in Tables 9 and 10, more than 90 percent of the CCCs were rated as "adapted" or "neutral" for all subjects and grade levels.

## Criterion 2a: Content Centrality

Panelists made a consensus decision on how well they thought the content in the CCC matched the content in the identified CCSS using three response options:

- Content clearly linked = All content in the CCC can be found in the CCSS.
- Content weakly linked = Most of the content in the CCC can be found in the CCSS.
- Content completely different = None of the CCC content can be found in the CCSS.

For this criterion, at least 90 percent of the CCCs should be rated as "content clearly linked" or "content weakly linked." This minimum level was established by HumRRO after referencing the Links for Academic Learning (LAL) method, which does not specify a minimum acceptable level for content centrality.

Tables 11 and 12 show the relationship between the CCCs and the CCSS for mathematics and ELA. For mathematics, at least 90 percent of the CCCs were rated as content clearly linked or content weakly linked to the identified CCSS for all grades. For grade five mathematics, panelists did not rate one of the CCCs (5.PRF.2b1) and stated that the CCC was not ratable as currently written because they were unsure what the CCC was asking students to generate. In grade six, panelists rated one CCC (6.PRF.1d1) as having completely different content from the CCSS. They stated single-step linear equations are not part of the identified CCSS (6.EE.A.2). In ELA, 100 percent of the CCCs were rated as either clearly or weakly linked to the identified CCSS for all grades. Appendix B lists the CCSS linked to each CCC and the consensus quality of link rating determined by panelists for each grade and subject.

*Table 9. Mean Percentage of CCC Evaluations Rated as Age Appropriate Across Panelists – Mathematics*

| Grade | N Panelists | N CCCs [a] | Mean % (N) of CCC Evaluations Rated as Inappropriate [b] | Mean % (N) of CCC Evaluations Rated as Neutral [b] | Mean % (N) of CCC Evaluations Rated as Adapted [b] | Mean % (N) of CCC Evaluations Rated as Neutral or Adapted [b] |
|---|---|---|---|---|---|---|
| 3 | 5 | 9-10 | 0.00 (0.0) | 22.45 (2.2) | 77.55 (7.6) | 100.00 (9.6) |
| 4 | 5 | 8-10 | 0.00 (0.0) | 6.67 (0.6) | 93.33 (8.4) | 100.00 (9.0) |
| 5 | 5 | 10 | 4.00 (0.4) | 4.00 (0.4) | 92.00 (9.2) | 96.00 (9.6) |
| 6 | 6 | 10 | 0.00 (0.0) | 100.00 (10.0) | 0.00 (0.0) | 100.00 (10.0) |
| 7 | 6 | 10 | 0.00 (0.0) | 100.00 (10.0) | 0.00 (0.0) | 100.00 (10.0) |
| 8 | 6 | 10 | 0.00 (0.0) | 100.00 (10.0) | 0.00 (0.0) | 100.00 (10.0) |
| 11 | 5 | 10 | 8.00 (0.8) | 44.00 (4.4) | 48.00 (4.8) | 92.00 (9.2) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating on all CCCs.
[b] Values in parentheses denote the mean number of CCCs rated across panelists for each category.

*Table 10. Mean Percentage of CCC Evaluations Rated as Age Appropriate Across Panelists – ELA*

| Grade | N Panelists | N CCCs [a] | Mean % (N) of CCC Evaluations Rated as Inappropriate [b] | Mean % (N) of CCC Evaluations Rated as Neutral [b] | Mean % (N) of CCC Evaluations Rated as Adapted [b] | Mean % (N) of CCC Evaluations Rated as Neutral or Adapted [b] |
|---|---|---|---|---|---|---|
| 3 | 5 | 12 | 0.00 (0.0) | 100.00 (12.0) | 0.00 (0.0) | 100.00 (12.0) |
| 4 | 5 | 12 | 0.00 (0.0) | 100.00 (12.0) | 0.00 (0.0) | 100.00 (12.0) |
| 5 | 5 | 10 | 0.00 (0.0) | 100.00 (10.0) | 0.00 (0.0) | 100.00 (10.0) |
| 6 | 6 | 12 | 0.00 (0.0) | 100.00 (12.0) | 0.00 (0.0) | 100.00 (12.0) |
| 7 | 6 | 10 | 0.00 (0.0) | 100.00 (10.0) | 0.00 (0.0) | 100.00 (10.0) |
| 8 | 6 | 10-11 | 0.00 (0.0) | 100.00 (10.8) | 0.00 (0.0) | 100.00 (10.8) |
| 11 | 5 | 10-11 | 3.70 (0.4) | 11.11 (1.2) | 85.19 (9.2) | 96.30 (10.4) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating on all CCCs.
[b] Values in parentheses denote the mean number of CCCs rated across panelists for each category.

*Table 11. Mean Percentage of Consensus CCC Evaluations Linked to On-Grade Level CCSS – Mathematics*

| Grade | N Panelists | N CCCs | Mean % (N) CCC Evaluations Rated as Content Completely Different [a] | Mean % (N) CCC Evaluations Rated as Content Weakly Linked [a] | Mean % (N) CCC Evaluations Rated as Content Clearly Linked [a] | Mean % (N) CCC Evaluations Rated as Content Weakly or Clearly Linked [a] |
|---|---|---|---|---|---|---|
| 3 | 5 | 10 | 0.00 (0.0) | 20.00 (2.0) | 80.00 (8.0) | 100.00 (10.0) |
| 4 | 5 | 10 | 0.00 (0.0) | 20.00 (2.0) | 80.00 (8.0) | 100.00 (10.0) |
| 5 | 5 | 9 [b] | 0.00 (0.0) | 11.11 (1.0) | 88.89 (8.0) | 100.00 (9.0) |
| 6 | 6 | 10 | 10.00 (1.0) | 20.00 (2.0) | 70.00 (7.0) | 90.00 (9.0) |
| 7 | 6 | 10 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (10.0) | 100.00 (10.0) |
| 8 | 6 | 10 | 0.00 (0.0) | 10.00 (1.0) | 90.00 (9.0) | 100.00 (10.0) |
| 11 | 5 | 10 | 0.00 (0.0) | 10.00 (1.0) | 90.00 (9.0) | 100.00 (10.0) |

Note: N is an abbreviation for Number.
[a] Values in parentheses denote the consensus number of CCCs rated for each category.
[b] Panelists agreed that one of the CCCs was not clear; thus, not ratable (5.PRF.2b1).

*Table 12. Mean Percentage of Consensus CCC Evaluations Linked to On-Grade Level CCSS – ELA*

| Grade | N Panelists | N CCCs | Mean % (N) CCC Evaluations Rated as Content Completely Different [a] | Mean % (N) CCC Evaluations Rated as Content Weakly Linked [a] | Mean % (N) CCC Evaluations Rated as Content Clearly Linked [a] | Mean % (N) CCC Evaluations Rated as Content Weakly or Clearly Linked [a] |
|---|---|---|---|---|---|---|
| 3 | 5 | 12 | 0.00 (0.0) | 8.33 (1.0) | 91.62 (11.0) | 100.00 (12.0) |
| 4 | 5 | 12 | 0.00 (0.0) | 8.33 (1.0) | 91.62 (11.0) | 100.00 (12.0) |
| 5 | 5 | 10 | 0.00 (0.0) | 20.00 (2.0) | 80.00 (8.0) | 100.00 (10.0) |
| 6 | 6 | 12 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (12.0) | 100.00 (12.0) |
| 7 | 6 | 10 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (10.0) | 100.00 (10.0) |
| 8 | 6 | 11 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (11.0) | 100.00 (11.0) |
| 11 | 5 | 11 | 0.00 (0.0) | 18.18 (2.0) | 81.82 (9.0) | 100.00 (11.0) |

Note: N is an abbreviation for Number.
[a] Values in parentheses denote the consensus number of CCCs rated for each category.

## *Criterion 2b: Performance Centrality*

The CCCs should link to the CCSS for mathematics and ELA in performance expectations as well as content, although the depth of these expectations can be reduced for the CCCs. Several analyses were conducted to compare the performance expectations specified in the CCCs to the CCSS for mathematics and ELA. One analysis focused on the depth of knowledge (DOK) ratings. Panelists worked together to achieve consensus DOK ratings on the CCCs and the CCSS for mathematics and ELA, separately. These ratings were analyzed for comparability. Specifically, we compared the DOK ratings of the CCCs from the CAA Blueprint for mathematics and for ELA to the ratings given to the corresponding CCSS for mathematics and ELA. A second analysis focused on individual panelist ratings.

As mentioned earlier, in the CAA Blueprint a one-to-one relationship did not necessarily exist between the CCCs and the linked CCSS. Table 13 lists the subject/grades where two CCSS were linked to one CCC, and Table 14 lists the subject/grades where one CCSS was linked to two CCCs. Appendix C lists the specific CCSS and CCCs associated with these situations.

*Table 13. Counts of Two CCSS Linked to One CCC in ELA CAA Blueprint*

| Grade | Counts of CCSS | Counts of CCC |
|---|---|---|
| 3 | 10 | 5 |
| 4 | 8 | 4 |
| 5 | 4 | 2 |
| 6 | 6 | 3 |
| 7 | 6 | 3 |
| 8 | 4 | 2 |
| 11 | 6 | 3 |

*Table 14. Counts of One CCSS Linked to Two CCCs in CAA Blueprint*

| Subject | Grade | CCSS | CCC |
|---|---|---|---|
| Mathematics | 4 | 1 | 2 |
| Mathematics | 5 | 1 | 2 |
| Mathematics | 7 | 2 | 4 |
| ELA | 3 | 1 | 2 |
| ELA | 6 | 1 | 2 |

## Comparison of Consensus CCSS and Core Content Connectors Depth of Knowledge Ratings

To compare the DOK assigned to the CCCs and the linked CCSS, special consideration was given for the situations listed in Tables 13 and 14. When comparing the DOK assigned to the CCSS and CCCs in Table 13, we selected the higher DOK of the two CCSS and compared it to the CCC DOK. For the comparison of DOK for one CCSS to two CCCs as seen in Table 14, we compared the DOK of the CCSS to each CCC separately.

Tables 15 and 16 present the percentage of CCCs, on average, per grade level/subject rated as expecting performance at the same level, or higher or lower levels, as the CCSS for mathematics and ELA. Although there is no minimum level of acceptable overlap in DOK, there is an assumption that CCCs should be skewed to require lower cognitive complexity than the state standards (Flowers et. al, 2007) (in this case, the CCSS). It may be reasonable, then, to expect that as many as half of the CCCs would require students to demonstrate performance at a lower level than the state standards. On the other hand, it would be problematic to find several CCCs with performance expectations at a higher level than the CCSS for mathematics and ELA.

Across all content areas, panelists rated at least 70 percent of the CCCs at a DOK level at the same or lower level than the corresponding CCSS for mathematics and ELA. In mathematics, 20 percent of CCCs were assigned higher levels of cognitive complexity than the corresponding CCSS in grades four and eleven. In ELA, 30 percent and 27 percent of CCCs in grades five and eleven, respectively, were assigned a higher level of complexity than the state standards.

## Analysis of Independent Panelist Core Content Connectors Performance Expectation Ratings

We also asked panelists to directly compare the written performance expectations in the CCCs with the associated CCSS for mathematics and ELA. Panelists evaluated the content and objectives of each CCC to decide whether the expectations are the same (All), partially the same (Some), or differ entirely (None) from what is expected in the corresponding CCSS for mathematics and ELA. For example, when students are asked to “distinguish between” in the CCSS for mathematics, but the CCC requires students to “recognize,” then the expectation for demonstrating knowledge is different. When a CCSS for ELA expects students to “identify and explain,” while the CCC asks students to “identify” only, these expectations are rated as “partially the same.” Tables 17 and 18 show the results of this comparison. To meet the criterion, at least 90 percent of the CCCs, on average across panelists, should be rated as “some” or “all” compared with the state standards.

*Table 15. Mean Percentage of Consensus CCC Evaluations at Lower, Same, or Higher Levels of Complexity Compared to Related CCSS – Mathematics*

| Grade | N Panelists | N CCCs | Mean % (N) of CCC Evaluations Rated as Lower Complexity [a] | Mean % (N) of CCC Evaluations Rated as Same Complexity [a] | Mean % (N) of CCC Evaluations Rated as Higher Complexity [a] | Mean % (N) of CCC Evaluations Rated as Same or Lower Complexity [a] |
|---|---|---|---|---|---|---|
| 3 | 5 | 9 [b] | 22.22 (2.0) | 77.78 (7.0) | 0.00 (0.0) | 100.00 (9.0) |
| 4 | 5 | 10 | 30.00 (3.0) | 50.00 (5.0) | 20.00 (2.0) | 80.00 (8.0) |
| 5 | 5 | 9 [c] | 22.22 (2.0) | 77.78 (7.0) | 0.00 (0.0) | 100.00 (9.0) |
| 6 | 6 | 10 | 60.00 (6.0) | 40.00 (4.0) | 0.00 (0.0) | 100.00 (10.0) |
| 7 | 6 | 10 | 30.00 (3.0) | 60.00 (6.0) | 10.00 (1.0) | 90.00 (9.0) |
| 8 | 6 | 10 | 30.00 (3.0) | 60.00 (6.0) | 10.00 (1.0) | 90.00 (9.0) |
| 11 | 5 | 10 | 50.00 (5.0) | 30.00 (3.0) | 20.00 (2.0) | 80.00 (8.0) |

Note: N is an abbreviation for Number.
[a] Values in parentheses denote the consensus number of CCCs rated for each category.
[b] An invalid DOK value was recorded for one CCSS so a comparison was not made.
[c] Panelists agreed that one of the CCCs was not clear; thus, not ratable (5.PRF.2b1).

*Table 16. Mean Percentage of Consensus CCC Evaluations at Lower, Same, or Higher Levels of Complexity Compared to Related CCSS – ELA*

| Grade | N Panelists | N CCCs | Mean % (N) of CCC Evaluations Rated as Lower Complexity [a] | Mean % (N) of CCC Evaluations Rated as Same Complexity [a] | Mean % (N) of CCC Evaluations Rated as Higher Complexity [a] | Mean % (N) of CCC Evaluations Rated as Same or Lower Complexity [a] |
|---|---|---|---|---|---|---|
| 3 | 5 | 12 | 50.00 (6.0) | 41.67 (5.0) | 8.33 (1.0) | 91.67 (11.0) |
| 4 | 5 | 12 | 16.67 (2.0) | 75.00 (9.0) | 8.33 (1.0) | 91.67 (11.0) |
| 5 | 5 | 10 | 10.00 (1.0) | 60.00 (6.0) | 30.00 (3.0) | 70.00 (7.0) |
| 6 | 6 | 12 | 41.67 (5.0) | 58.33 (7.0) | 0.00 (0.0) | 100.00 (12.0) |
| 7 | 6 | 10 | 50.00 (5.0) | 50.00 (5.0) | 0.00 (0.0) | 100.00 (10.0) |
| 8 | 6 | 11 | 63.64 (7.0) | 36.36 (4.0) | 0.00 (0.0) | 100.00 (11.0) |
| 11 | 5 | 11 | 36.36 (4.0) | 36.36 (4.0) | 27.27 (3.0) | 72.72 (8.0) |

Note: N is an abbreviation for Number.
[a] Values in parentheses denote the consensus number of CCCs rated for each category.

*Table 17. Mean Percentage of CCC Evaluations at Various Levels of Performance Centrality Across Panelists – Mathematics*

| Grade | N Panelists | N CCCs [a] | Mean % (N) of CCC Evaluations Rated as None [b] | Mean % (N) of CCC Evaluations Rated as Some [b] | Mean % (N) of CCC Evaluations Rated as All [b] | Mean % (N) of CCC Evaluations Rated as Some or All [b] |
|---|---|---|---|---|---|---|
| 3 | 5 | 10 | 4.00 (0.4) | 68.00 (6.8) | 28.00 (2.8) | 96.00 (9.6) |
| 4 | 5 | 7-10 | 2.38 (0.2) | 83.33 (7.0) | 14.29 (1.2) | 97.62 (8.2) |
| 5 | 5 | 10 | 8.00 (0.8) | 70.00 (7.0) | 22.00 (2.2) | 92.00 (9.2) |
| 6 | 6 | 10 | 10.00 (1.0) | 86.67 (8.7) | 3.33 (0.3) | 90.00 (9.0) |
| 7 | 6 | 10 | 0.00 (0.0) | 80.00 (8.0) | 20.00 (2.0) | 100.00 (10.0) |
| 8 | 6 | 10 | 1.67 (0.2) | 95.00 (9.5) | 3.33 (0.3) | 98.33 (9.8) |
| 11 | 5 | 10 | 4.00 (0.4) | 56.00 (5.6) | 40.00 (4.0) | 96.00 (9.6) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating on all CCCs.
[b] Values in parentheses denote the mean number of CCCs rated across panelists for each category.

*Table 18. Mean Percentage of CCC Evaluations at Various Levels of Performance Centrality Across Panelists – ELA*

| Grade | N Panelists | N CCCs [a] | Mean % (N) of CCC Evaluations Rated as None [b] | Mean % (N) of CCC Evaluations Rated as Some [b] | Mean % (N) of CCC Evaluations Rated as All [b] | Mean % (N) of CCC Evaluations Rated as Some or All [b] |
|---|---|---|---|---|---|---|
| 3 | 5 | 12 | 16.67 (2.0) | 70.00 (8.4) | 13.33 (1.6) | 83.33 (10.0) |
| 4 | 5 | 12 | 10.00 (1.2) | 75.00 (9.0) | 15.00 (1.8) | 90.00 (10.8) |
| 5 | 5 | 10 | 16.00 (1.6) | 74.00 (7.4) | 10.00 (1.0) | 84.00 (8.4) |
| 6 | 6 | 12 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (12.0) | 100.00 (12.0) |
| 7 | 6 | 10 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (10.0) | 100.00 (10.0) |
| 8 | 6 | 9-11 | 0.00 (0.0) | 3.13 (0.3) | 96.88 (10.3) | 100.00 (10.6) |
| 11 | 5 | 10-11 | 0.00 (0.0) | 31.37 (3.2) | 68.63 (7.0) | 100.00 (10.2) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating on all CCCs.
[b] Values in parentheses denote the mean number of CCCs rated across panelists for each category.

Across all grades in mathematics, panelists rated more than 90 percent of the CCCs as having some or all of the same performance expectations as the corresponding CCSS. For grades six through eleven in ELA, 100 percent of the CCCs were rated by panelists as having some or all of the same performance expectations as the corresponding CCSS. Panelists rated 90 percent of the CCCs for ELA in grade four as having some or all of the same performance expectations as the corresponding CCSS. However, in grades three and five, panelists rated 83 percent and 84 percent, respectively, of the CCCs for ELA as having some or all of the same performance expectations as the corresponding CCSS. In grade three, the majority of panelists rated 3.WI.p1 and 3.RI.h1 as entirely differing in performance expectations from W.3.2/W.3.2a and 3.RI.5, respectively. In grade five, the majority of panelists rated 5.WI.b3 and 5.RL.c2 as entirely differing in performance expectations from W.5.2/W.5.2a/W.5.2b and 5.RL.2, respectively.

## *Criterion 4: Content Differentiation*

This criterion focuses on whether the content expectations change appropriately between grade levels and is evaluated by comparing grade level content expectations. Panelists in the mathematics and ELA assessments for grades three through five and grades six through eight reviewed their respective grade-level CCCs and rated the extent to which higher grade levels evidenced broader, deeper, and new knowledge, as well as growth on prerequisite skills (see Appendix A for a more detailed explanation of the dimensions). For each dimension, panelists reached consensus as to whether the CCC content differentiated across the three grade levels (rating scale: clear, partial, limited, or no differentiation). According to the Links for Academic Learning (LAL) method, content expectations should show evidence of at least partial differences in content between grades on the dimensions of Broader, Deeper, Prerequisite, and New. After panelists evaluated the four dimensions, they were asked to give an overall yes/no rating of whether the content expectations between grades were identical. A rating of “yes” (they are identical) would suggest there are generally no increases or changes in the expectations between grade levels. Because expectations are that there is progress from grade to grade, a rating of “No”’ would be preferable from the point of view of assessment evaluation.

As Tables 19 and 20 exhibit, the degree of content differentiation varies across dimensions and grade levels. The LAL method suggests that all ratings indicating differentiation (clear, partial, or limited) result in acceptability for each category. Because only one grade is evaluated at the high school level, we did not include grade eleven in this analysis. In mathematics, panelists found content differentiation to be partial in the elementary grade levels and clear in the middle school grade levels in all areas (breadth, depth, prerequisite, new learning), and consequently rated the CCCs to not be identical between the grades. In ELA for both grade spans, panelists also found content differentiation to be either partial or clear in all areas (breadth, depth, prerequisite, new skill or knowledge), and consequently rated the CCCs to not be identical between the grades. However, there was one exception for ELA grades six through eight, where panelists indicated that no new skill or knowledge was introduced when the CAA Blueprint CCCs across the grades were compared to each other.

*Table 19. Consensus CCC Content Differentiation Across Grades – Mathematics*

| Grades Reviewed | Dimension | Rating | Rating Support (Consensus Panelist Comments) |
|---|---|---|---|
| 3 – 5 | Broader | Partial | Multiplication, rounding, and measurement skills become broader between some grade levels: however, at some grade levels the skills aren't targeted. There are gaps in differentiation with converting measurements of length in 5th grade (not assessed prior to, and prerequisites not taught). Third, fourth, and fifth grade geometry don't link in any way. |
| 3 – 5 | Deeper | Partial | Operations & Algebraic Thinking and Number & Operations in Base Ten are clearly deeper between grade levels. Number & Operations – Fractions and Measurement & Data are partially linked. Number & Operations – Fractions: third grade standard was more difficult than 4th grade standard. Third, fourth, and fifth grade Geometry don't link in any way. |
| 3 – 5 | Prerequisite | Partial | Operations & Algebraic Thinking and Number & Operations in Base Ten demonstrate prerequisite skills. Number & Operations – Fractions and Measurement & Data are partially linked; see "Deeper" box for reasons why. Third, fourth, and fifth grade Geometry don't link in any way. |
| 3 – 5 | New | Partial | Third and fourth grade have more skill continuity; fifth grade introduces several new skills. |
| 3 – 5 | Identical | No [a] | Standards changed each domain and grade level. |
| 6 – 8 | Broader | Clear | The team concluded that there is clear differentiation between the grade level CCC's. An example that was discussed was the concept of ratios, introduced in sixth grade which transitioned to proportions in seventh grade and then led in to graphing using these proportions in eighth grade. |
| 6 – 8 | Deeper | Clear | The team concluded that there is clear differentiation between the grade level CCC's. An example that was discussed was the amount of explanation required at the different grade levels. |
| 6 – 8 | Prerequisite | Clear | The team concluded that there is clear differentiation between the grade level CCCs and that the skills build to eighth grade content from sixth. |
| 6 – 8 | New | Clear | The team concluded that there is clear differentiation between the grade level CCC's regarding new skills or knowledge. An example is the introduction of circles in seventh grade and functions in eighth grade, both of which were not introduced in the prior grade. |
| 6 – 8 | Identical | No [a] | The team did not find any identical CCC's from grade to grade. |

[a] For the Identical dimension, the rating scale is “yes” or “no.”

*Table 20. Consensus CCC Content Differentiation Across Grades – ELA*

| Grades Reviewed | Dimension | Rating | Rating Support (Consensus Panelist Comments) |
|---|---|---|---|
| 3 – 5 | Broader | Partial | Third grade CCC are more direct skills that are then applied to other skills as the student progresses through the grades. There is not a clear differentiation because some of the CCCs repeat through the grade levels while others do not remain consistent. New skills are introduced instead of adding to the previous skills (ex. 3.RI.h4 goes from illustrations to main idea to comparing and contrasting). |
| 3 – 5 | Deeper | Partial | 4.RL.k2 goes deeper into the concepts of understanding a text. Third grade is asked to answer questions, fourth to determine the theme and describe characters, and fifth to compare characters, settings and events. The majority of the standards follow a similar continuum of skills adding more concepts and depth to the same category of skill. |
| 3 – 5 | Prerequisite | Clear | The majority of the CCCs in third grade target a prerequisite skill. When you would expect a prerequisite skill to be needed in a fourth or fifth grade CCC, it is present in the previous grade's CCC. |
| 3 – 5 | New | Clear | Across the CCC, new skills are targeted in the higher grade levels. |
| 3 – 5 | Identical | No [a] | Although a few are identical, the majority of the CCC change throughout the grade levels. |
| 6 – 8 | Broader | Clear | 6RI.g4 --> 7.RI.j5, 7RI.I1 --> 8RI.I1, 6RWL.a1 --> 7RWL.g1 require a broader mastery of the target Reading skills/knowledge for the higher grade CCC. |
| 6 – 8 | Deeper | Clear | 6WL.c1 --> 7WL.I1. 6WL.c3 --> 7WL.o1, 6RL.b2 & 6RL.b3 --> 7RL.i2, 6RL.c3 --> 7RL.j1 --> 8RL.j2; 6RI.g4 --> 7.RI.j5 require a deeper mastery of the target Writing skills/knowledge for the higher grade CCC. |
| 6 – 8 | Prerequisite | Clear | Yes, all. |
| 6 – 8 | New | No | Only 8.WP.k2 and 8WI.o1 require a new skill/knowledge unrelated to skills/knowledge covered in prior grades. |
| 6 – 8 | Identical | No [a] | Higher-grade CCCs appear identical to one of the lower-grade CCCs only in the cases of: 6WI.h2 <--> 7WI.o1 <--> 8WIo1, 7RL.i2 <--> 8RL.i2, 6RI.g6 <--> 7RI.I1, 7RWL.g1 <--> 8WRL.g1, and 6RWL.c1 <--> 8RWL.i1. |

[a] For the Identical dimension, the rating scale is “yes” or “no.”

# Chapter 4: Alignment of California Alternate Assessment Items to Core Content Connectors

In this section, we report on the results of panelists' ratings on the California Alternate Assessment (CAA) items for mathematics and ELA. In general, and unless otherwise specified, at least 90 percent of CAA items must achieve acceptable ratings to demonstrate linkage to grade-level content for each criterion.

Throughout this chapter, the column "N Panelists" will denote the total number of panelists used in the analyses, while the "N Items" column shows the range of items that panelists evaluated. If a panelist was not able to review an item or skipped an item, the total number of items, for a particular panelist, equals the number of items actually evaluated by the panelist and not all of the items. Appendix D provides analyses at the subject, grade, and version level for age appropriateness, performance centrality, accessibility, and accommodations.

The number of panelists was small for this study, and the variability of ratings among panelists differed by item. The first few items were discussed among panelists before independent rating began. Periodic checks of panelist consistency were made during the study, and panelists were retrained or they discussed aberrant item ratings as necessary. Panelists were allowed to change their ratings as a result of these discussions or retraining. For those reasons, no panelist agreement or reliability statistics were computed. We did check for outlier panelists during analyses. If a panelist provided consistently aberrant ratings, those ratings were omitted from the analyses. The full set of item ratings are appended to allow for deeper investigation of item-level results.

Note that percentages typically refer to the percentage of ratings across items, rather than the true percentage of items. Not all panelists gave the same rating to every item, so it would not be appropriate simply to use the total number of items as the denominator in item percentage calculations. This allows the overall percentages to reflect disagreement among the panelists' ratings. So, if a single panelist rates an item poorly, while four other panelists indicate that the item is acceptable for a given criterion, that single rating is reflected in the percentage, but it does not unduly impact the overall conclusion.

For criteria 1, 2b, 3a, 3b, 3c, and 5, we calculated criterion statistics by first counting the number of item ratings at each rating category per panelist (based on the number of items rated). Next, we calculated the mean percentages of ratings across panelists. For example, Table 21 shows for grade four ELA the item ratings for five panelists and the statistics calculated. For each panelist, the number of items rated as "inappropriate," "neutral," or "adapted" and the total number of items rated by each panelist are counted. Next, the counts of the ratings at each category across panelists are summed in the numerator and denominator, producing the values in the Equation row. These values are used to obtain the mean rating for each category across panelists, which is then converted to the percentage for each category.

*Table 21. Mean Percentage of ELA CAA Item Evaluations Rated as Age Appropriate Across Panelists – Grade Four Calculation*

| Panelist, Equation, Mean, or Percentage | Counts of Item Evaluations, Per Panelist, Rated as Inappropriate | Counts of Item Evaluations, Per Panelist, Rated as Neutral | Counts of Item Evaluations, Per Panelist, Rated as Adapted |
|---|---|---|---|
| Panelist A | 2/50 | 48/50 | 0/50 |
| Panelist B | 0/50 | 50/50 | 0/50 |
| Panelist C | 0/50 | 50/50 | 0/50 |
| Panelist D | 0/49 | 49/49 | 0/49 |
| Panelist E | 0/50 | 50/50 | 0/50 |
| Equation | 2/249 | 247/249 | 0/249 |
| Mean | 0.0080 | 0.9920 | 0.00 |
| Percentage | 0.80 | 99.20 | 0.00 |

## Criterion 1: Age Appropriate

Panelists evaluated the CAA items on whether the content and item assessed students at an appropriate level linked to their assigned grade (of the tested population). Tables 22 and 23 display the percentage of items judged as adapted (linked on-grade level), inappropriate (off-grade), and neutral (not age-bound). For acceptable linkage, at least 90 percent of items, on average across panelists, must be judged “adapted” or “neutral.” In this case, all the CAA items across subjects and grades were rated by panelists as being either adapted or neutral. Note that panelists were expected to rate 50 items. Items for each grade included 10 common items, plus 11 items per form (22 items), plus six items per tier (18 items) (10 + 22 + 18 = 50).

## Criterion 2b: Performance Centrality

In addition to the targeted content, the CAA items should retain the performance expectation intended by the Core Content Connectors (CCCs) to some extent. For example, if the CCC requires students to compare and contrast content, the items should necessitate students to make some type of similar distinction. Tables 24 and 25 show the percentage of items rated as retaining all (same performance expectation), some, or none of the performance expectations of the CCCs. To meet the criterion, at least 90 percent of items, on average across panelists, should receive ratings of “some” or “all.”

For all grades and subjects, panelists rated the number of CAA items as surpassing the 90 percent minimum level of acceptability for performance centrality.

*Table 22. Mean Percentage of CAA Item Evaluations Rated as Age Appropriate Across Panelists – Mathematics*

| Grade | N Panelists | N Items | Mean % (N) of Item Evaluations Rated as Inappropriate [a] | Mean % (N) of Item Evaluations Rated as Neutral [a] | Mean % (N) of Item Evaluations Rated as Adapted [a] | Mean % (N) of Item Evaluations Rated as Neutral or Adapted [a] |
|---|---|---|---|---|---|---|
| 3 | 5 | 50 | 3.20 (1.6) | 1.60 (0.8) | 95.20 (47.6) | 96.80 (48.4) |
| 4 | 5 | 50 | 5.20 (2.6) | 0.80 (0.4) | 94.00 (47.0) | 94.80 (47.4) |
| 5 | 5 | 50 | 4.80 (2.4) | 2.00 (1.0) | 93.20 (46.6) | 95.20 (47.6) |
| 6 | 6 | 50 | 2.00 (1.0) | 91.33 (45.7) | 6.67 (3.3) | 98.00 (49.0) |
| 7 | 6 | 50 | 1.00 (0.5) | 92.33 (46.2) | 6.67 (3.3) | 99.00 (49.5) |
| 8 | 6 | 50 | 0.33 (0.2) | 92.67 (46.3) | 7.00 (3.5) | 99.67 (49.8) |
| 11 | 5 | 50 | 1.60 (0.8) | 48.40 (24.2) | 50.00 (25.0) | 98.40 (49.2) |

Note: N is an abbreviation for Number.
[a] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table 23. Mean Percentage of CAA Item Evaluations Rated as Age Appropriate Across Panelists – ELA*

| Grade | N Panelists | N Items [a] | Mean % (N) of Item Evaluations Rated as Inappropriate [b] | Mean % (N) of Item Evaluations Rated as Neutral [b] | Mean % (N) of Item Evaluations Rated as Adapted [b] | Mean % (N) of Item Evaluations Rated as Neutral or Adapted [b] |
|---|---|---|---|---|---|---|
| 3 | 5 | 50 | 1.60 (0.8) | 98.40 (49.2) | 0.00 (0.0) | 98.40 (49.2) |
| 4 | 5 | 49-50 | 0.80 (0.4) | 99.20 (49.4) | 0.00 (0.0) | 99.20 (49.4) |
| 5 | 5 | 50 | 0.80 (0.4) | 99.20 (49.6) | 0.00 (0.0) | 99.20 (49.6) |
| 6 | 6 | 50 | 0.00 (0.0) | 100.00 (50.0) | 0.00 (0.0) | 100.00 (50.0) |
| 7 | 6 | 50 | 0.00 (0.0) | 97.33 (48.7) | 2.67 (1.3) | 100.00 (50.0) |
| 8 | 6 | 49-50 | 0.33 (0.2) | 99.67 (49.7) | 0.00 (0.0) | 99.67 (49.7) |
| 11 | 5 | 50 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (50.0) | 100.00 (50.0) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating for all items.
[b] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table 24. Mean Percentage of Item Evaluations at Various Levels of Performance Centrality Across Panelists – Mathematics*

| Grade | N Panelists | N Items [a] | Mean % (N) of Item Evaluations Rated as None [b] | Mean % (N) of Item Evaluations Rated as Some [b] | Mean % (N) of Item Evaluations Rated as All [b] | Mean % (N) of Item Evaluations Rated as All or Some [b] |
|---|---|---|---|---|---|---|
| 3 | 5 | 49-50 | 3.69 (1.8) | 22.95 (11.4) | 73.36 (36.2) | 96.31 (47.6) |
| 4 | 5 | 49-50 | 2.04 (1.0) | 22.86 (11.4) | 75.10 (37.2) | 97.96 (48.6) |
| 5 | 5 | 48-50 | 3.69 (1.8) | 23.36 (11.6) | 72.95 (36.0) | 96.31 (47.6) |
| 6 | 6 | 50 | 2.33 (1.2) | 11.00 (5.5) | 86.67 (43.3) | 97.67 (48.8) |
| 7 | 6 | 50 | 0.00 (0.0) | 9.67 (4.8) | 90.33 (45.2) | 100.00 (50.0) |
| 8 | 5 [c] | 50 | 0.40 (0.2) | 15.60 (7.8) | 84.00 (42.0) | 99.60 (49.8) |
| 11 | 5 | 50 | 2.00 (1.0) | 54.40 (27.2) | 43.60 (21.8) | 98.00 (49.0) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating for all items.
[b] Values in parentheses denote the mean number of items rated across panelists for each category.
[c] In grade 8, one panelist skipped all ratings for performance centrality.

*Table 25. Mean Percentage of Item Evaluations at Various Levels of Performance Centrality Across Panelists – ELA*

| Grade | N Panelists | N Items [a] | Mean % (N) of Item Evaluations Rated as None [b] | Mean % (N) of Item Evaluations Rated as Some [b] | Mean % (N) of Item Evaluations Rated as All [b] | Mean % (N) of Item Evaluations Rated as All or Some [b] |
|---|---|---|---|---|---|---|
| 3 | 5 | 49-50 | 8.03 (4.0) | 55.82 (27.8) | 36.14 (18.0) | 91.96 (45.8) |
| 4 | 5 | 50 | 2.80 (1.4) | 56.80 (28.4) | 40.40 (20.2) | 97.20 (48.6) |
| 5 | 5 | 49-50 | 3.23 (1.6) | 67.74 (33.8) | 29.03 (14.4) | 96.77 (48.2) |
| 6 | 6 | 50 | 0.33 (0.2) | 1.33 (0.6) | 98.33 (49.2) | 99.67 (49.8) |
| 7 | 6 | 50 | 0.00 (0.0) | 5.67 (2.8) | 94.33 (47.2) | 100.00 (50.0) |
| 8 | 6 | 49-50 | 0.00 (0.0) | 2.01 (1.0) | 97.99 (48.8) | 100.00 (49.8) |
| 11 | 5 | 50 | 0.00 (0.0) | 0.80 (0.4) | 99.20 (49.6) | 100.00 (50.0) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating for all items.
[b] Values in parentheses denote the mean number of items rated across panelists for each category.

## *Criterion 3a: Items Represent Intended Content*

Panelists identified a CCC for each CAA item. Then, panelists rated whether each item and identified CCC were (1) not aligned, (2) partially aligned, or (3) fully aligned. The cross-tabulation of the ratings by version and tier is presented below in Tables 26 and 27. To estimate the approximate number of items assigned a specific rating, we first removed any item for which a panelist was not able to identify an aligned CCC or assigned an invalid CCC. Next, the remaining items were summed to find the total number of ratings across panelists, and divided by the number of panelists who provided ratings at the item level. For acceptable alignment, at least 90 percent of items, on average across panelists, should receive ratings of "partially" or "fully" aligned.

Tables 26 and 27 provide the following information:

- **Grade** – assessment grade level
- **N Panelists** – the number of panelists providing ratings
- **Form** – the version and tier combination (i.e., V1T1 – Version 1 Tier 1, V1T2 – Version 1 Tier 2, V1T3 – Version 1 Tier 3)
- **N Items** – the number of items rated by panelists
- **% of Items with No CCC Assigned** – percent of items out of all items that panelists could not identify a CCC to link with an item
- **% of Items with Invalid CCC Assigned** – percent of items out of all items that panelists provided an invalid CCC for the item (i.e., a CCC that does not exist)
- **% of Items Rated as Not Aligned** – percent of items out of all items rated by panelists as not aligned
- **% of Items Rated as Partially Aligned** – percent of items out of all items rated by panelists as partially aligned
- **% of Items Rated as Fully Aligned** – percent of items out of all items rated by panelists as fully aligned
- **% of Items Rated as Partially or Fully Aligned** – summation of percent of items rated as partially aligned and fully aligned

To illustrate, the first row in Table 26 provides the following information. For grade three, five panelists rated form V1T1, which contained 27 items. Panelists rated 8.89 percent of the items as not matching to any CCC, and assigned another 1.48 percent of items to a CCC that did not exist. Overall, they rated 0.74 percent of items as not aligned, 11.11 percent as partially aligned, and 77.78 percent as fully aligned. Finally, panelists rated 88.89 percent of items on form V1T1 as partially or fully, a rating just below the 90 percent criterion.

*Table 26. Mean Percentage of CAA Item Evaluations Rated as Linked Across Panelists by Grade and Form – Mathematics*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations with No CCC Assigned [b] | Mean % (N) of Item Evaluations with Invalid CCC Assigned [b] | Mean % (N) of Item Evaluations Rated as Not Linked [b] | Mean % (N) of Item Evaluations Rated as Partially Linked [b] | Mean % (N) of Item Evaluations Rated as Fully Linked [b] | Mean % (N) of Item Evaluations Rated as Partially or Fully Linked [b] |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 27 | 8.89 (2.4) | 1.48 (0.4) | 0.74 (0.2) | 11.11 (3.0) | 77.78 (21.0) | 88.89 (24.0) |
| 3 | 5 | V1T2 | 27 | 4.44 (1.2) | 1.48 (0.4) | 0.00 (0.0) | 11.11 (3.0) | 82.96 (22.4) | 94.07 (25.4) |
| 3 | 5 | V1T3 | 27 | 4.44 (1.2) | 1.48 (0.4) | 0.00 (0.0) | 10.37 (2.8) | 83.70 (22.6) | 94.07 (25.4) |
| 3 | 5 | V2T1 | 27 | 12.59 (3.4) | 0.74 (0.2) | 0.74 (0.2) | 8.89 (2.4) | 77.04 (20.8) | 85.93 (23.2) |
| 3 | 5 | V2T2 | 27 | 8.15 (2.2) | 0.74 (0.2) | 0.00 (0.0) | 8.89 (2.4) | 82.22 (22.2) | 91.11 (24.6) |
| 3 | 5 | V2T3 | 27 | 8.15 (2.2) | 0.74 (0.2) | 0.00 (0.0) | 8.15 (2.2) | 82.96 (22.4) | 91.11 (24.6) |
| 4 | 5 | V1T1 | 27 | 8.15 (2.2) | 1.48 (0.4) | 0.00 (0.0) | 8.89 (2.4) | 81.48 (22.0) | 90.37 (24.4) |
| 4 | 5 | V1T2 | 27 | 2.96 (0.8) | 0.00 (0.0) | 0.00 (0.0) | 5.93 (1.6) | 91.11 (24.6) | 97.04 (26.2) |
| 4 | 5 | V1T3 | 27 | 2.96 (0.8) | 0.00 (0.0) | 0.00 (0.0) | 7.41 (2.0) | 89.63 (24.2) | 97.04 (26.2) |
| 4 | 5 | V2T1 | 27 | 8.15 (2.2) | 2.22 (0.6) | 0.00 (0.0) | 7.41 (2.0) | 82.22 (22.2) | 89.63 (24.2) |
| 4 | 5 | V2T2 | 27 | 2.96 (0.8) | 0.74 (0.2) | 0.00 (0.0) | 4.44 (1.2) | 91.85 (24.8) | 96.30 (26.0) |
| 4 | 5 | V2T3 | 27 | 2.96 (0.8) | 0.74 (0.2) | 0.00 (0.0) | 5.93 (1.6) | 90.37 (24.4) | 96.30 (26.0) |
| 5 | 5 | V1T1 | 27 | 11.11 (3.0) | 0.00 (0.0) | 0.00 (0.0) | 3.70 (1.0) | 85.19 (23.0) | 88.89 (24.0) |
| 5 | 5 | V1T2 | 27 | 9.63 (2.6) | 0.74 (0.2) | 0.74 (0.2) | 3.70 (1.0) | 85.19 (23.0) | 88.89 (24.0) |
| 5 | 5 | V1T3 | 27 | 8.15 (2.2) | 0.00 (0.0) | 0.00 (0.0) | 2.96 (0.8) | 88.89 (24.0) | 91.85 (24.8) |
| 5 | 5 | V2T1 | 26-27 | 14.18 (3.8) | 0.00 (0.0) | 0.00 (0.0) | 5.22 (1.4) | 80.60 (21.4) | 85.82 (22.8) |
| 5 | 5 | V2T2 | 26-27 | 11.94 (3.2) | 0.75 (0.2) | 0.75 (0.2) | 5.22 (1.4) | 80.60 (21.4) | 85.82 (22.8) |
| 5 | 5 | V2T3 | 26-27 | 10.45 (2.8) | 0.00 (0.0) | 0.00 (0.0) | 4.48 (1.2) | 84.33 (22.4) | 88.81 (23.6) |
| 6 | 6 | V1T1 | 27 | 0.62 (0.2) | 0.00 (0.0) | 0.00 (0.0) | 17.28 (4.6) | 82.10 (22.2) | 99.38 (26.8) |
| 6 | 6 | V1T2 | 27 | 0.62 (0.2) | 0.00 (0.0) | 0.00 (0.0) | 12.96 (3.5) | 86.42 (23.3) | 99.38 (26.8) |
| 6 | 6 | V1T3 | 27 | 0.62 (0.2) | 0.00 (0.0) | 0.00 (0.0) | 12.35 (3.3) | 87.04 (23.5) | 99.38 (26.8) |
| 6 | 6 | V2T1 | 27 | 0.62 (0.2) | 0.00 (0.0) | 3.70 (1.0) | 20.37 (5.5) | 75.31 (20.3) | 95.68 (25.8) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations with No CCC Assigned [b] | Mean % (N) of Item Evaluations with Invalid CCC Assigned [b] | Mean % (N) of Item Evaluations Rated as Not Linked [b] | Mean % (N) of Item Evaluations Rated as Partially Linked [b] | Mean % (N) of Item Evaluations Rated as Fully Linked [b] | Mean % (N) of Item Evaluations Rated as Partially or Fully Linked [b] |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 6 | V2T2 | 27 | 0.62 (0.2) | 0.00 (0.0) | 3.70 (1.0) | 16.05 (4.3) | 79.63 (21.5) | 95.68 (25.8) |
| 6 | 6 | V2T3 | 27 | 0.62 (0.2) | 0.00 (0.0) | 3.70 (1.0) | 15.43 (4.2) | 80.25 (21.6) | 95.68 (25.8) |
| 7 | 6 | V1T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 12.96 (3.5) | 87.04 (23.5) | 100.00 (27.0) |
| 7 | 6 | V1T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 9.26 (2.5) | 90.74 (24.5) | 100.00 (27.0) |
| 7 | 6 | V1T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 7.41 (2.0) | 92.59 (25.0) | 100.00 (27.0) |
| 7 | 6 | V2T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 9.26 (2.5) | 90.74 (24.5) | 100.00 (27.0) |
| 7 | 6 | V2T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 5.56 (1.5) | 94.44 (25.5) | 100.00 (27.0) |
| 7 | 6 | V2T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 3.70 (1.0) | 96.30 (26.0) | 100.00 (27.0) |
| 8 | 6 | V1T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 1.23 (0.3) | 16.05 (4.3) | 82.72 (22.3) | 98.77 (26.7) |
| 8 | 6 | V1T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 8.64 (2.3) | 91.36 (24.7) | 100.00 (27.0) |
| 8 | 6 | V1T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 9.88 (2.7) | 90.12 (24.3) | 100.00 (27.0) |
| 8 | 6 | V2T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 1.23 (0.3) | 18.52 (5.0) | 80.25 (21.7) | 98.77 (26.7) |
| 8 | 6 | V2T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 11.11 (3.0) | 88.89 (24.0) | 100.00 (27.0) |
| 8 | 6 | V2T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 12.35 (3.3) | 87.65 (23.7) | 100.00 (27.0) |
| 11 | 5 | V1T1 | 27 | 0.00 (0.0) | 0.74 (0.2) | 1.48 (0.4) | 18.52 (5.0) | 79.26 (21.4) | 97.78 (26.4) |
| 11 | 5 | V1T2 | 27 | 0.00 (0.0) | 0.74 (0.2) | 0.74 (0.2) | 11.11 (3.0) | 87.41 (23.6) | 98.52 (26.6) |
| 11 | 5 | V1T3 | 27 | 0.00 (0.0) | 0.74 (0.2) | 0.74 (0.2) | 11.11 (3.0) | 87.41 (23.6) | 98.52 (26.6) |
| 11 | 5 | V2T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 1.48 (0.4) | 20.00 (5.4) | 78.52 (21.2) | 98.52 (26.6) |
| 11 | 5 | V2T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.74 (0.2) | 12.59 (3.4) | 86.67 (23.4) | 99.26 (26.8) |
| 11 | 5 | V2T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.74 (0.2) | 12.59 (3.4) | 86.67 (23.4) | 99.26 (26.8) |

Note: N is an abbreviation for Number.

[a] A range of values denotes at least one panelist did not provide a rating for all items.

[b] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table 27. Mean Percentage of CAA Item Evaluations Rated as Linked Across Panelists by Grade and Form – ELA*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations with No CCC Assigned [b] | Mean % (N) of Item Evaluations with Invalid CCC Assigned [b] | Mean % (N) of Item Evaluations Rated as Not Linked [b] | Mean % (N) of Item Evaluations Rated as Partially Linked [b] | Mean % (N) of Item Evaluations Rated as Fully Linked [b] | Mean % (N) of Item Evaluations Rated as Partially or Fully Linked [b] |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 27 | 5.93 (1.6) | 4.44 (1.2) | 0.00 (0.0) | 18.52 (5.0) | 71.11 (19.2) | 89.63 (24.2) |
| 3 | 5 | V1T2 | 27 | 5.93 (1.6) | 4.44 (1.2) | 0.00 (0.0) | 20.00 (5.4) | 69.63 (18.8) | 89.63 (24.2) |
| 3 | 5 | V1T3 | 27 | 5.93 (1.6) | 4.44 (1.2) | 0.74 (0.2) | 19.26 (5.2) | 69.63 (18.8) | 88.89 (24.0) |
| 3 | 5 | V2T1 | 27 | 3.70 (1.0) | 4.44 (1.2) | 0.00 (0.0) | 17.04 (4.6) | 74.81 (20.2) | 91.85 (24.8) |
| 3 | 5 | V2T2 | 27 | 3.70 (1.0) | 4.44 (1.2) | 0.00 (0.0) | 18.52 (5.0) | 73.33 (19.8) | 91.85 (24.8) |
| 3 | 5 | V2T3 | 27 | 3.70 (1.0) | 4.44 (1.2) | 0.74 (0.2) | 17.78 (4.8) | 73.33 (19.8) | 91.11 (24.6) |
| 4 | 5 | V1T1 | 27 | 1.48 (0.4) | 0.00 (0.0) | 0.00 (0.0) | 15.56 (4.2) | 82.96 (22.4) | 98.52 (26.6) |
| 4 | 5 | V1T2 | 27 | 2.22 (0.6) | 0.74 (0.2) | 0.00 (0.0) | 15.56 (4.2) | 81.48 (22.0) | 97.04 (26.2) |
| 4 | 5 | V1T3 | 27 | 2.22 (0.6) | 2.22 (0.6) | 0.74 (0.2) | 11.85 (3.2) | 82.96 (22.4) | 94.81 (25.6) |
| 4 | 5 | V2T1 | 27 | 0.74 (0.2) | 1.48 (0.4) | 0.00 (0.0) | 13.33 (3.6) | 84.44 (22.8) | 97.77 (26.4) |
| 4 | 5 | V2T2 | 27 | 1.48 (0.4) | 2.22 (0.6) | 0.00 (0.0) | 13.33 (3.6) | 82.96 (22.4) | 96.30 (26.0) |
| 4 | 5 | V2T3 | 27 | 1.48 (0.4) | 3.70 (1.0) | 0.74 (0.2) | 9.63 (2.6) | 84.44 (22.8) | 94.07 (25.4) |
| 5 | 5 | V1T1 | 26-27 | 1.50 (0.4) | 0.75 (0.2) | 0.00 (0.0) | 38.35 (10.2) | 59.40 (15.8) | 97.75 (26.0) |
| 5 | 5 | V1T2 | 26-27 | 3.76 (1.0) | 0.00 (0.0) | 0.00 (0.0) | 35.34 (9.4) | 60.90 (16.2) | 96.24 (25.6) |
| 5 | 5 | V1T3 | 26-27 | 1.50 (0.4) | 0.00 (0.0) | 0.00 (0.0) | 36.84 (9.8) | 61.65 (16.4) | 98.49 (26.2) |
| 5 | 5 | V2T1 | 26-27 | 1.50 (0.4) | 1.50 (0.4) | 0.00 (0.0) | 31.58 (8.4) | 65.41 (17.4) | 96.99 (25.8) |
| 5 | 5 | V2T2 | 26-27 | 3.76 (1.0) | 0.75 (0.2) | 0.00 (0.0) | 28.57 (7.6) | 66.92 (17.8) | 95.49 (25.4) |
| 5 | 5 | V2T3 | 26-27 | 1.50 (0.4) | 0.75 (0.2) | 0.00 (0.0) | 30.08 (8.0) | 67.67 (18.0) | 97.75 (26.0) |
| 6 | 6 | V1T1 | 27 | 0.00 (0.0) | 0.62 (0.2) | 0.00 (0.0) | 3.70 (1.0) | 95.68 (25.8) | 99.38 (26.8) |
| 6 | 6 | V1T2 | 27 | 0.00 (0.0) | 0.62 (0.2) | 0.00 (0.0) | 3.70 (1.0) | 95.68 (25.8) | 99.38 (26.8) |
| 6 | 6 | V1T3 | 27 | 0.00 (0.0) | 0.62 (0.2) | 0.62 (0.2) | 3.70 (1.0) | 95.06 (25.6) | 98.76 (26.6) |
| 6 | 6 | V2T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 1.23 (0.3) | 98.77 (26.7) | 100.00 (27.0) |
| 6 | 6 | V2T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 1.23 (0.3) | 98.77 (26.7) | 100.00 (27.0) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations with No CCC Assigned [b] | Mean % (N) of Item Evaluations with Invalid CCC Assigned [b] | Mean % (N) of Item Evaluations Rated as Not Linked [b] | Mean % (N) of Item Evaluations Rated as Partially Linked [b] | Mean % (N) of Item Evaluations Rated as Fully Linked [b] | Mean % (N) of Item Evaluations Rated as Partially or Fully Linked [b] |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 6 | V2T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.62 (0.2) | 1.23 (0.3) | 98.15 (26.5) | 99.38 (26.8) |
| 7 | 6 | V1T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 9.88 (2.7) | 90.12 (24.3) | 100.00 (27.0) |
| 7 | 6 | V1T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 7.41 (2.0) | 92.59 (25.0) | 100.00 (27.0) |
| 7 | 6 | V1T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 7.41 (2.0) | 92.59 (25.0) | 100.00 (27.0) |
| 7 | 6 | V2T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 7.41 (2.0) | 92.59 (25.0) | 100.00 (27.0) |
| 7 | 6 | V2T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 4.94 (1.3) | 95.06 (25.7) | 100.00 (27.0) |
| 7 | 6 | V2T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 4.94 (1.3) | 95.06 (25.7) | 100.00 (27.0) |
| 8 | 6 | V1T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 1.23 (0.3) | 98.77 (26.7) | 100.00 (27.0) |
| 8 | 6 | V1T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 1.23 (0.3) | 98.77 (26.7) | 100.00 (27.0) |
| 8 | 6 | V1T3 | 27 | 0.62 (0.2) | 0.62 (0.2) | 0.00 (0.0) | 0.62 (0.2) | 98.15 (26.5) | 98.77 (26.7) |
| 8 | 6 | V2T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 1.85 (0.5) | 98.15 (26.5) | 100.00 (27.0) |
| 8 | 6 | V2T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 1.85 (0.5) | 98.15 (26.5) | 100.00 (27.0) |
| 8 | 6 | V2T3 | 27 | 0.62 (0.2) | 0.62 (0.2) | 0.00 (0.0) | 1.20 (0.3) | 97.50 (26.3) | 98.70 (26.6) |
| 11 | 5 | V1T1 | 27 | 0.00 (0.0) | 0.74 (0.2) | 0.00 (0.0) | 0.00 (0.0) | 99.26 (26.8) | 99.26 (26.8) |
| 11 | 5 | V1T2 | 27 | 0.00 (0.0) | 0.74 (0.2) | 0.00 (0.0) | 0.00 (0.0) | 99.26 (26.8) | 99.26 (26.8) |
| 11 | 5 | V1T3 | 27 | 0.00 (0.0) | 0.74 (0.2) | 0.00 (0.0) | 0.00 (0.0) | 99.26 (26.8) | 99.26 (26.8) |
| 11 | 5 | V2T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 100.00 (27.0) | 100.00 (27.0) |
| 11 | 5 | V2T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 100.00 (27.0) | 100.00 (27.0) |
| 11 | 5 | V2T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 0.00 (0.0) | 100.00 (27.0) | 100.00 (27.0) |

Note: N is an abbreviation for Number.

[a] A range of values denotes at least one panelist did not provide a rating for all items.

[b] Values in parentheses denote the mean number of items rated across panelists for each category.

Results from Tables 26 and 27 can be summarized as follows:

- More than 90 percent of items were rated as either partially or fully aligned to the indicated CCC for all grades/subjects except for:
    - grade three mathematics (two forms, 85.93%–88.89%),
    - grade four mathematics (one form, 89.63%),
    - grade five mathematics (five forms, 85.82%–88.89%), and
    - grade three ELA (three forms, 88.89%–89.63%).
- Grades three and five in mathematics presented the largest percentage of items to which panelists assigned no CCC
    - Panelists stated that they could not find a grade level CCC matching the content of these items.

## *Criterion 3b: Items Represent Intended Domains*

To address this criterion, we compared the distribution of CAA items in each domain of the aligned to the targeted percentage of items specified in the CAA Blueprint. Then, we aggregated the percentage of items by domain of each aligned CCC for each version and tier (i.e., form). This allowed us to generate a distribution of items by domain for each version and tier of the CAA.

Tables 28 through 34 show the mean percentage of aligned items (partially or fully aligned rating) across panelists per domain, version, and tier by grade for mathematics. The target criterion stated in the CAA Blueprint for each Common Core State Standard (CCSS) Domain is also provided. Ideally, we would like the percentage of items differing from the CAA Blueprint to be within 10 percent (absolute value of % of items in Blueprint minus % of items on CAA). Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

In general, the percentage of items per domain assigned by the panelists varied compared to the percentage of items specified in the test blueprints. Across all grades, most domains, based on panelist assignment of CCCs to items, did not differ from the CAA Blueprint percentages by more than 10 percentage points. Additionally, there is no evidence to support that domains represented on the CAAs systematically differ from the domains specified on the CAA Blueprints by test version or tier.

Results from Tables 28 through 34 can be further summarized as follows:

- More than 10 percent of items per domain differed from the CAA Blueprint for these grades in mathematics:
    - grade three (one domain, three forms, 10.06%–13.52%),
    - grade four (one domain, two forms, 11.79%–13.67%),
    - grade five (two domains, three forms, 10.21%–18.03%),
    - grade seven (one domain, one form, 11.31%), and
    - grade eight (one domain, one form, 10.53%).

*Table 28. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – Mathematics Grade Three*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Operations & Algebraic Thinking | 30.00 (8.1) | 40.52 (9.7) | **-10.52** |
| V1T1 | Number & Operations in Base Ten and Number & Operations – Fractions | 35.00 (9.5) | 28.26 (6.8) | +6.74 |
| V1T1 | Measurement & Data and Geometry | 35.00 (9.5) | 31.22 (7.5) | +3.78 |
| V1T2 | Operations & Algebraic Thinking | 30.00 (8.1) | 43.52 (11.1) | **-13.52** |
| V1T2 | Number & Operations in Base Ten and Number & Operations – Fractions | 35.00 (9.5) | 26.08 (6.6) | +8.92 |
| V1T2 | Measurement & Data and Geometry | 35.00 (9.5) | 30.40 (7.7) | +4.60 |
| V1T3 | Operations & Algebraic Thinking | 30.00 (8.1) | 40.06 (10.2) | **-10.06** |
| V1T3 | Number & Operations in Base Ten and Number & Operations – Fractions | 35.00 (9.5) | 29.23 (7.4) | +5.77 |
| V1T3 | Measurement & Data and Geometry | 35.00 (9.5) | 30.71 (7.8) | +4.29 |
| V2T1 | Operations & Algebraic Thinking | 30.00 (8.1) | 31.48 (7.3) | -1.48 |
| V2T1 | Number & Operations in Base Ten and Number & Operations – Fractions | 35.00 (9.5) | 34.68 (8.0) | +0.32 |
| V2T1 | Measurement & Data and Geometry | 35.00 (9.5) | 33.84 (7.9) | +1.16 |
| V2T2 | Operations & Algebraic Thinking | 30.00 (8.1) | 35.37 (8.7) | -5.37 |
| V2T2 | Number & Operations in Base Ten and Number & Operations – Fractions | 35.00 (9.5) | 31.91 (7.8) | +3.09 |
| V2T2 | Measurement & Data and Geometry | 35.00 (9.5) | 32.72 (8.0) | +2.28 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T3 | Operations & Algebraic Thinking | 30.00 (8.1) | 31.41 (7.7) | -1.41 |
| V2T3 | Number & Operations in Base Ten and Number & Operations – Fractions | 35.00 (9.5) | 35.44 (8.7) | -0.44 |
| V2T3 | Measurement & Data and Geometry | 35.00 (9.5) | 33.16 (8.2) | +1.84 |

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.
[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 26.
[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 29. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – Mathematics Grade Four*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Operations & Algebraic Thinking | 30.00 (8.1) | 41.79 (10.2) | **-11.79** |
| V1T1 | Number & Operations in Base Ten and Number & Operations – Fractions | 40.00 (10.8) | 31.33 (7.6) | +8.67 |
| V1T1 | Measurement & Data and Geometry | 30.00 (8.1) | 26.88 (6.6) | +3.12 |
| V1T2 | Operations & Algebraic Thinking | 30.00 (8.1) | 36.47 (9.6) | -6.47 |
| V1T2 | Number & Operations in Base Ten and Number & Operations – Fractions | 40.00 (10.8) | 34.55 (9.1) | +5.45 |
| V1T2 | Measurement & Data and Geometry | 30.00 (8.1) | 28.99 (7.6) | +1.01 |
| V1T3 | Operations & Algebraic Thinking | 30.00 (8.1) | 36.67 (9.6) | -6.67 |
| V1T3 | Number & Operations in Base Ten and Number & Operations – Fractions | 40.00 (10.8) | 35.44 (9.3) | +4.56 |
| V1T3 | Measurement & Data and Geometry | 30.00 (8.1) | 27.89 (7.3) | +2.11 |
| V2T1 | Operations & Algebraic Thinking | 30.00 (8.1) | 43.67 (10.6) | **-13.67** |
| V2T1 | Number & Operations in Base Ten and Number & Operations – Fractions | 40.00 (10.8) | 34.08 (8.2) | +5.92 |
| V2T1 | Measurement & Data and Geometry | 30.00 (8.1) | 22.25 (5.4) | +7.75 |
| V2T2 | Operations & Algebraic Thinking | 30.00 (8.1) | 38.34 (10.0) | -8.34 |
| V2T2 | Number & Operations in Base Ten and Number & Operations – Fractions | 40.00 (10.8) | 37.10 (9.6) | +2.90 |
| V2T2 | Measurement & Data and Geometry | 30.00 (8.1) | 24.55 (6.4) | +5.45 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T3 | Operations & Algebraic Thinking | 30.00 (8.1) | 38.59 (10.0) | -8.59 |
| V2T3 | Number & Operations in Base Ten and Number & Operations – Fractions | 40.00 (10.8) | 37.89 (9.9) | +2.11 |
| V2T3 | Measurement & Data and Geometry | 30.00 (8.1) | 23.52 (6.1) | +6.48 |

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.
[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 26.
[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 30. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – Mathematics Grade Five*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Operations & Algebraic Thinking | 15.00 (4.1) | 33.03 (7.9) | **-18.03** |
| V1T1 | Number & Operations in Base Ten and Number & Operations – Fractions | 55.00 (14.9) | 46.16 (11.1) | +8.84 |
| V1T1 | Measurement & Data and Geometry | 30.00 (8.1) | 20.80 (5.0) | +9.20 |
| V1T2 | Operations & Algebraic Thinking | 15.00 (4.1) | 31.87 (7.6) | **-16.87** |
| V1T2 | Number & Operations in Base Ten and Number & Operations – Fractions | 55.00 (14.9) | 44.79 (10.7) | **+10.21** |
| V1T2 | Measurement & Data and Geometry | 30.00 (8.1) | 23.35 (5.6) | +6.65 |
| V1T3 | Operations & Algebraic Thinking | 15.00 (4.1) | 30.90 (7.7) | **-15.90** |
| V1T3 | Number & Operations in Base Ten and Number & Operations – Fractions | 55.00 (14.9) | 46.20 (11.5) | +8.80 |
| V1T3 | Measurement & Data and Geometry | 30.00 (8.1) | 22.90 (5.7) | +7.10 |
| V2T1 | Operations & Algebraic Thinking | 15.00 (4.1) | 24.87 (5.7) | -9.87 |
| V2T1 | Number & Operations in Base Ten and Number & Operations – Fractions | 55.00 (14.9) | 47.64 (10.9) | +7.36 |
| V2T1 | Measurement & Data and Geometry | 30.00 (8.1) | 27.49 (6.3) | +2.51 |
| V2T2 | Operations & Algebraic Thinking | 15.00 (4.1) | 24.00 (5.5) | -9.00 |
| V2T2 | Number & Operations in Base Ten and Number & Operations – Fractions | 55.00 (14.9) | 45.97 (10.5) | +9.03 |
| V2T2 | Measurement & Data and Geometry | 30.00 (8.1) | 30.03 (6.8) | -0.03 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T3 | Operations & Algebraic Thinking | 15.00 (4.1) | 23.05 (5.4) | -8.05 |
| V2T3 | Number & Operations in Base Ten and Number & Operations – Fractions | 55.00 (14.9) | 47.56 (11.2) | +7.44 |
| V2T3 | Measurement & Data and Geometry | 30.00 (8.1) | 29.39 (6.9) | +0.61 |

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.
[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 26.
[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 31. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – Mathematics Grade Six*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Ratios & Proportional Relationships | 30.00 (8.1) | 27.17 (7.3) | +2.83 |
| V1T1 | The Number System | 25.00 (6.8) | 28.55 (7.7) | -3.55 |
| V1T1 | Expressions & Equations | 25.00 (6.8) | 28.79 (7.7) | -3.79 |
| V1T1 | Geometry | 10.00 (2.7) | 6.85 (1.8) | +3.15 |
| V1T1 | Statistics & Probability | 10.00 (2.7) | 9.78 (2.6) | +0.22 |
| V1T2 | Ratios & Proportional Relationships | 30.00 (8.1) | 26.71 (7.2) | +3.29 |
| V1T2 | The Number System | 25.00 (6.8) | 26.69 (7.2) | -1.69 |
| V1T2 | Expressions & Equations | 25.00 (6.8) | 30.49 (8.2) | -5.49 |
| V1T2 | Geometry | 10.00 (2.7) | 6.87 (1.8) | +3.13 |
| V1T2 | Statistics & Probability | 10.00 (2.7) | 10.39 (2.8) | -0.39 |
| V1T3 | Ratios & Proportional Relationships | 30.00 (8.1) | 28.06 (7.5) | +1.94 |
| V1T3 | The Number System | 25.00 (6.8) | 27.66 (7.4) | -2.66 |
| V1T3 | Expressions & Equations | 25.00 (6.8) | 27.76 (7.4) | -2.76 |
| V1T3 | Geometry | 10.00 (2.7) | 6.77 (1.8) | +3.23 |
| V1T3 | Statistics & Probability | 10.00 (2.7) | 10.87 (2.9) | -0.87 |
| V2T1 | Ratios & Proportional Relationships | 30.00 (8.1) | 21.69 (5.6) | +8.31 |
| V2T1 | The Number System | 25.00 (6.8) | 31.05 (8.0) | -6.05 |
| V2T1 | Expressions & Equations | 25.00 (6.8) | 28.68 (7.4) | -3.68 |
| V2T1 | Geometry | 10.00 (2.7) | 10.72 (2.8) | -0.72 |
| V2T1 | Statistics & Probability | 10.00 (2.7) | 9.64 (2.5) | +0.36 |
| V2T2 | Ratios & Proportional Relationships | 30.00 (8.1) | 21.17 (5.5) | +8.83 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T2 | The Number System | 25.00 (6.8) | 29.20 (7.5) | -4.20 |
| V2T2 | Expressions & Equations | 25.00 (6.8) | 30.46 (7.9) | -5.46 |
| V2T2 | Geometry | 10.00 (2.7) | 10.73 (2.8) | -0.73 |
| V2T2 | Statistics & Probability | 10.00 (2.7) | 10.22 (2.6) | -0.22 |
| V2T3 | Ratios & Proportional Relationships | 30.00 (8.1) | 22.69 (5.9) | +7.31 |
| V2T3 | The Number System | 25.00 (6.8) | 30.16 (7.8) | -5.16 |
| V2T3 | Expressions & Equations | 25.00 (6.8) | 27.60 (7.1) | -2.60 |
| V2T3 | Geometry | 10.00 (2.7) | 10.58 (2.7) | -0.58 |
| V2T3 | Statistics & Probability | 10.00 (2.7) | 10.74 (2.8) | -0.74 |

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.

[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 26.

[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 32. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – Mathematics Grade 7*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Ratios & Proportional Relationships | 35.00 (9.5) | 40.71 (11.0) | -5.71 |
| V1T1 | The Number System | 15.00 (4.1) | 23.29 (6.3) | -8.29 |
| V1T1 | Expressions & Equations | 20.00 (5.4) | 8.69 (2.3) | **+11.31** |
| V1T1 | Geometry | 15.00 (4.1) | 17.40 (4.7) | -2.40 |
| V1T1 | Statistics & Probability | 15.00 (4.1) | 9.92 (2.7) | +5.08 |
| V1T2 | Ratios & Proportional Relationships | 35.00 (9.5) | 39.67 (10.7) | -4.67 |
| V1T2 | The Number System | 15.00 (4.1) | 22.70 (6.1) | -7.70 |
| V1T2 | Expressions & Equations | 20.00 (5.4) | 10.79 (2.9) | +9.21 |
| V1T2 | Geometry | 15.00 (4.1) | 17.27 (4.7) | -2.27 |
| V1T2 | Statistics & Probability | 15.00 (4.1) | 9.56 (2.6) | +5.44 |
| V1T3 | Ratios & Proportional Relationships | 35.00 (9.5) | 41.48 (11.2) | -6.48 |
| V1T3 | The Number System | 15.00 (4.1) | 22.47 (6.1) | -7.47 |
| V1T3 | Expressions & Equations | 20.00 (5.4) | 10.65 (2.9) | +9.35 |
| V1T3 | Geometry | 15.00 (4.1) | 17.69 (4.8) | -2.69 |
| V1T3 | Statistics & Probability | 15.00 (4.1) | 7.70 (20.8) | +7.30 |
| V2T1 | Ratios & Proportional Relationships | 35.00 (9.5) | 38.02 (10.3) | -3.02 |
| V2T1 | The Number System | 15.00 (4.1) | 23.81 (6.4) | -8.81 |
| V2T1 | Expressions & Equations | 20.00 (5.4) | 11.94 (3.2) | +8.06 |
| V2T1 | Geometry | 15.00 (4.1) | 14.30 (3.9) | +0.70 |
| V2T1 | Statistics & Probability | 15.00 (4.1) | 11.93 (3.2) | +3.07 |
| V2T2 | Ratios & Proportional Relationships | 35.00 (9.5) | 36.82 (9.9) | -1.82 |
| V2T2 | The Number System | 15.00 (4.1) | 23.28 (6.3) | -8.28 |
| V2T2 | Expressions & Equations | 20.00 (5.4) | 14.15 (3.8) | +5.85 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T2 | Geometry | 15.00 (4.1) | 14.11 (3.8) | +0.89 |
| V2T2 | Statistics & Probability | 15.00 (4.1) | 11.64 (3.1) | +3.36 |
| V2T3 | Ratios & Proportional Relationships | 35.00 (9.5) | 38.77 (10.5) | -3.77 |
| V2T3 | The Number System | 15.00 (4.1) | 23.01 (6.2) | -8.01 |
| V2T3 | Expressions & Equations | 20.00 (5.4) | 14.00 (3.8) | +6.00 |
| V2T3 | Geometry | 15.00 (4.1) | 14.56 (3.9) | +0.44 |
| V2T3 | Statistics & Probability | 15.00 (4.1) | 9.66 (2.6) | +5.34 |

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.
[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 26.
[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 33. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – Mathematics Grade 8*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | The Number System | 10.00 (2.7) | 10.18 (2.7) | -0.18 |
| V1T1 | Expressions & Equations and Fractions | 35.00 (9.5) | 38.32 (10.2) | -3.32 |
| V1T1 | Geometry | 30.00 (8.1) | 28.8 (7.7) | +1.20 |
| V1T1 | Statistics & Probability | 20.00 (5.4) | 22.71 (6.1) | -2.71 |
| V1T2 | The Number System | 10.00 (2.7) | 9.78 (2.6) | +0.22 |
| V1T2 | Expressions & Equations and Fractions | 35.00 (9.5) | 37.44 (10.1) | -2.44 |
| V1T2 | Geometry | 30.00 (8.1) | 28.23 (7.6) | +1.77 |
| V1T2 | Statistics & Probability | 20.00 (5.4) | 24.56 (6.6) | -4.56 |
| V1T3 | The Number System | 10.00 (2.7) | 9.95 (2.7) | +0.05 |
| V1T3 | Expressions & Equations and Fractions | 35.00 (9.5) | 36.14 (9.8) | -1.14 |
| V1T3 | Geometry | 30.00 (8.1) | 28.18 (7.6) | +1.82 |
| V1T3 | Statistics & Probability | 20.00 (5.4) | 25.73 (6.9) | -5.73 |
| V2T1 | The Number System | 10.00 (2.7) | 6.42 (1.7) | +3.58 |
| V2T1 | Expressions & Equations and Fractions | 35.00 (9.5) | 45.53 (12.2) | **-10.53** |
| V2T1 | Geometry | 30.00 (8.1) | 31.44 (8.4) | -1.44 |
| V2T1 | Statistics & Probability | 20.00 (5.4) | 16.6 (4.4) | +3.40 |
| V2T2 | The Number System | 10.00 (2.7) | 6.18 (1.7) | +3.82 |
| V2T2 | Expressions & Equations and Fractions | 35.00 (9.5) | 44.52 (12.0) | -9.52 |
| V2T2 | Geometry | 30.00 (8.1) | 30.73 (8.3) | -0.73 |
| V2T2 | Statistics & Probability | 20.00 (5.4) | 18.57 (5.0) | +1.43 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T3 | The Number System | 10.00 (2.7) | 6.28 (1.7) | +3.72 |
| V2T3 | Expressions & Equations and Fractions | 35.00 (9.5) | 43.31 (11.7) | -8.31 |
| V2T3 | Geometry | 30.00 (8.1) | 30.80 (8.3) | -0.80 |
| V2T3 | Statistics & Probability | 20.00 (5.4) | 19.61 (5.3) | +0.39 |

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.
[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 26.
[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 34. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – Mathematics Grade Eleven*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Number & Quantity: The Real Number System and Number & Quantity: Quantities | 20.00 (5.4) | 25.5 (6.7) | -5.50 |
| V1T1 | Algebra: Creating Equations and Functions: Interpreting Functions | 50.00 (13.5) | 45.26 (11.9) | +4.74 |
| V1T1 | Geometry: Similarity, Right Triangles, & Trigonometry | 10.00 (2.7) | 10.26 (2.7) | -0.26 |
| V1T1 | Statistics & Probability: Interpreting Categorical & Quantitative Data | 20.00 (5.4) | 18.97 (5.0) | +1.03 |
| V1T2 | Number & Quantity: The Real Number System and Number & Quantity: Quantities | 20.00 (5.4) | 25.34 (6.7) | -5.34 |
| V1T2 | Algebra: Creating Equations and Functions: Interpreting Functions | 50.00 (13.5) | 45.71 (12.2) | +4.29 |
| V1T2 | Geometry: Similarity, Right Triangles, & Trigonometry | 10.00 (2.7) | 9.42 (2.5) | +0.58 |
| V1T2 | Statistics & Probability: Interpreting Categorical & Quantitative Data | 20.00 (5.4) | 19.52 (5.2) | +0.48 |
| V1T3 | Number & Quantity: The Real Number System and Number & Quantity: Quantities | 20.00 (5.4) | 23.89 (6.4) | -3.89 |
| V1T3 | Algebra: Creating Equations and Functions: Interpreting Functions | 50.00 (13.5) | 47.14 (12.5) | -2.86 |
| V1T3 | Geometry: Similarity, Right Triangles, & Trigonometry | 10.00 (2.7) | 10.16 (2.7) | -0.16 |
| V1T3 | Statistics & Probability: Interpreting Categorical & Quantitative Data | 20.00 (5.4) | 18.81 (5.0) | +1.19 |
| V2T1 | Number & Quantity: The Real Number System and Number & Quantity: Quantities | 20.00 (5.4) | 20.67 (5.5) | -0.67 |
| V2T1 | Algebra: Creating Equations and Functions: Interpreting Functions | 50.00 (13.5) | 47.54 (12.6) | +2.46 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T1 | Geometry: Similarity, Right Triangles, & Trigonometry | 10.00 (2.7) | 10.41 (2.8) | -0.41 |
| V2T1 | Statistics & Probability: Interpreting Categorical & Quantitative Data | 20.00 (5.4) | 21.39 (5.7) | -1.39 |
| V2T2 | Number & Quantity: The Real Number System and Number & Quantity: Quantities | 20.00 (5.4) | 20.53 (5.5) | -0.53 |
| V2T2 | Algebra: Creating Equations and Functions: Interpreting Functions | 50.00 (13.5) | 47.96 (12.9) | +2.04 |
| V2T2 | Geometry: Similarity, Right Triangles, & Trigonometry | 10.00 (2.7) | 9.55 (2.6) | +0.45 |
| V2T2 | Statistics & Probability: Interpreting Categorical & Quantitative Data | 20.00 (5.4) | 21.96 (5.9) | -1.96 |
| V2T3 | Number & Quantity: The Real Number System and Number & Quantity: Quantities | 20.00 (5.4) | 19.07 (5.1) | +0.93 |
| V2T3 | Algebra: Creating Equations and Functions: Interpreting Functions | 50.00 (13.5) | 49.39 (13.2) | +0.61 |
| V2T3 | Geometry: Similarity, Right Triangles, & Trigonometry | 10.00 (2.7) | 10.29 (2.8) | -0.29 |
| V2T3 | Statistics & Probability: Interpreting Categorical & Quantitative Data | 20.00 (5.4) | 21.24 (5.7) | -1.24 |

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.
[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 26.
[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

Tables 35 through 41 show the mean percentage of aligned items (partially or fully aligned rating) across panelists per domain, version, and tier by grade for ELA. The target criterion stated in the CAA Blueprint for each CCSS Domain is also provided. Ideally, we would like the percentage of items differing from the CAA Blueprint to be within +/- 10 percent. Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

In general, panelists assigned items to CCCs resulting in percentages of items by domain that did not always closely mirror the percent of items per domain listed in the CAA Blueprint. There was considerable variance in the proportions of items assigned by panelists to domains, but there was no evidence that this variance was associated with grade level, tier, or version of the test. The largest discrepancy, across all grades, was for the Writing domain.

Results from Tables 35 through 41 can be further summarized as follows:

- More than 10 percent of items per domain differed from the CAA Blueprint for all grades in ELA:
    - grade three (three domains, six forms, 10.00%–23.15%),
    - grade four (three domains, six forms, 10.31%–19.56%),
    - grade five (two domains, six forms, 16.30%–29.80%),
    - grade six (two domains, five forms, 11.42%–24.05%),
    - grade seven (two domains, five forms, 10.04%–12.67%),
    - grade eight (three domains, six forms, 10.07%–21.98%), and
    - grade eleven (three domains, six forms, 10.21%–25.53%).

*Table 35. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – ELA Grade Three*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Reading: Literary | 30.00 (8.1) | 36.92 (8.9) | -6.92 |
| V1T1 | Reading: Informational | 25.00 (6.8) | 35.00 (8.5) | **-10.00** |
| V1T1 | Reading: Vocabulary | 9.00 (2.4) | 14.37 (3.5) | -5.37 |
| V1T1 | Reading: Foundation | 6.00 (1.6) | 7.77 (1.9) | -1.77 |
| V1T1 | Writing | 30.00 (8.1) | 9.92 (2.4) | **+20.08** |
| V1T2 | Reading: Literary | 30.00 (8.1) | 35.06 (8.5) | -5.06 |
| V1T2 | Reading: Informational | 25.00 (6.8) | 35.24 (8.5) | **10.24** |
| V1T2 | Reading: Vocabulary | 9.00 (2.4) | 12.68 (3.1) | -3.68 |
| V1T2 | Reading: Foundation | 6.00 (1.6) | 10.16 (2.5) | -4.16 |
| V1T2 | Writing | 30.00 (8.1) | 11.43 (2.8) | **+18.57** |
| V1T3 | Reading: Literary | 30.00 (8.1) | 39.28 (9.4) | -9.28 |
| V1T3 | Reading: Informational | 25.00 (6.8) | 30.36 (7.3) | -5.36 |
| V1T3 | Reading: Vocabulary | 9.00 (2.4) | 14.62 (3.5) | -5.62 |
| V1T3 | Reading: Foundation | 6.00 (1.6) | 9.08 (2.2) | -3.08 |
| V1T3 | Writing | 30.00 (8.1) | 11.11 (2.7) | **+18.89** |
| V2T1 | Reading: Literary | 30.00 (8.1) | 43.61 (10.8) | **-13.61** |
| V2T1 | Reading: Informational | 25.00 (6.8) | 34.98 (8.7) | -9.98 |
| V2T1 | Reading: Vocabulary | 9.00 (2.4) | 8.66 (2.1) | +0.34 |
| V2T1 | Reading: Foundation | 6.00 (1.6) | 5.90 (1.5) | +0.10 |
| V2T1 | Writing | 30.00 (8.1) | 6.85 (1.7) | **+23.15** |
| V2T2 | Reading: Literary | 30.00 (8.1) | 41.81 (10.4) | **-11.81** |
| V2T2 | Reading: Informational | 25.00 (6.8) | 35.26 (8.7) | **-10.26** |
| V2T2 | Reading: Vocabulary | 9.00 (2.4) | 7.00 (1.7) | +2.00 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T2 | Reading: Foundation | 6.00 (1.6) | 8.23 (2.0) | -2.23 |
| V2T2 | Writing | 30.00 (8.1) | 7.70 (1.9) | **+22.30** |
| V2T3 | Reading: Literary | 30.00 (8.1) | 45.87 (11.3) | **-15.87** |
| V2T3 | Reading: Informational | 25.00 (6.8) | 30.29 (7.5) | -5.29 |
| V2T3 | Reading: Vocabulary | 9.00 (2.4) | 9.03 (2.2) | -0.03 |
| V2T3 | Reading: Foundation | 6.00 (1.6) | 7.19 (1.8) | -1.19 |
| V2T3 | Writing | 30.00 (8.1) | 7.62 (1.9) | **+22.38** |

Note: N is an abbreviation for Number.

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.

[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 27.

[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 36. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – ELA Grade Four*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Reading: Literary | 30.00 (8.1) | 43.98 (11.7) | **-13.98** |
| V1T1 | Reading: Informational | 25.00 (6.8) | 32.80 (8.7) | -7.80 |
| V1T1 | Reading: Vocabulary | 9.00 (2.4) | 11.68 (3.1) | -2.68 |
| V1T1 | Reading: Foundation | 6.00 (1.6) | 3.57 (0.9) | +2.43 |
| V1T1 | Writing | 30.00 (8.1) | 10.82 (2.9) | **+19.18** |
| V1T2 | Reading: Literary | 30.00 (8.1) | 40.36 (10.6) | **-10.36** |
| V1T2 | Reading: Informational | 25.00 (6.8) | 35.31 (9.3) | **-10.31** |
| V1T2 | Reading: Vocabulary | 9.00 (2.4) | 12.46 (3.3) | -3.46 |
| V1T2 | Reading: Foundation | 6.00 (1.6) | 7.14 (1.9) | -1.14 |
| V1T2 | Writing | 30.00 (8.1) | 10.44 (2.7) | **+19.56** |
| V1T3 | Reading: Literary | 30.00 (8.1) | 41.81 (10.7) | **-11.81** |
| V1T3 | Reading: Informational | 25.00 (6.8) | 31.63 (8.1) | -6.63 |
| V1T3 | Reading: Vocabulary | 9.00 (2.4) | 11.43 (2.9) | -2.43 |
| V1T3 | Reading: Foundation | 6.00 (1.6) | 4.69 (1.2) | +1.31 |
| V1T3 | Writing | 30.00 (8.1) | 11.37 (2.9) | **+18.63** |
| V2T1 | Reading: Literary | 30.00 (8.1) | 44.13 (11.7) | **-14.13** |
| V2T1 | Reading: Informational | 25.00 (6.8) | 30.82 (8.1) | -5.82 |
| V2T1 | Reading: Vocabulary | 9.00 (2.4) | 12.57 (3.3) | -3.57 |
| V2T1 | Reading: Foundation | 6.00 (1.6) | 0.00 (0.0) | +6.00 |
| V2T1 | Writing | 30.00 (8.1) | 12.48 (3.3) | **+17.52** |
| V2T2 | Reading: Literary | 30.00 (8.1) | 40.12 (10.4) | **-10.12** |
| V2T2 | Reading: Informational | 25.00 (6.8) | 33.77 (8.8) | -8.77 |
| V2T2 | Reading: Vocabulary | 9.00 (2.4) | 13.50 (3.5) | -4.50 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T2 | Reading: Foundation | 6.00 (1.6) | 3.70 (1.0) | +2.30 |
| V2T2 | Writing | 30.00 (8.1) | 11.87 (3.1) | **+18.13** |
| V2T3 | Reading: Literary | 30.00 (8.1) | 41.59 (10.6) | **-11.59** |
| V2T3 | Reading: Informational | 25.00 (6.8) | 29.83 (7.6) | -4.83 |
| V2T3 | Reading: Vocabulary | 9.00 (2.4) | 12.35 (3.1) | -3.35 |
| V2T3 | Reading: Foundation | 6.00 (1.6) | 3.96 (1.0) | +2.04 |
| V2T3 | Writing | 30.00 (8.1) | 13.06 (3.3) | **+16.94** |

Note: N is an abbreviation for Number.

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.

[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 27.

[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 37. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – ELA Grade Five*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Reading: Literary | 30.00 (8.1) | 59.80 (15.5) | **-29.80** |
| V1T1 | Reading: Informational | 30.00 (8.1) | 29.24 (7.6) | +0.76 |
| V1T1 | Reading: Vocabulary | 10.00 (2.7) | 7.87 (2.0) | +2.13 |
| V1T1 | Writing | 30.00 (8.1) | 5.16 (1.3) | **+24.84** |
| V1T2 | Reading: Literary | 30.00 (8.1) | 56.64 (14.5) | **-26.64** |
| V1T2 | Reading: Informational | 30.00 (8.1) | 30.67 (7.9) | -0.67 |
| V1T2 | Reading: Vocabulary | 10.00 (2.7) | 7.27 (1.9) | +2.73 |
| V1T2 | Writing | 30.00 (8.1) | 6.78 (1.7) | **+23.22** |
| V1T3 | Reading: Literary | 30.00 (8.1) | 55.20 (14.5) | **-25.20** |
| V1T3 | Reading: Informational | 30.00 (8.1) | 32.69 (8.6) | -2.69 |
| V1T3 | Reading: Vocabulary | 10.00 (2.7) | 3.50 (0.9) | +6.50 |
| V1T3 | Writing | 30.00 (8.1) | 8.61 (2.3) | **+21.39** |
| V2T1 | Reading: Literary | 30.00 (8.1) | 54.36 (14.0) | **-24.36** |
| V2T1 | Reading: Informational | 30.00 (8.1) | 29.44 (7.6) | +0.56 |
| V2T1 | Reading: Vocabulary | 10.00 (2.7) | 8.03 (2.1) | +1.97 |
| V2T1 | Writing | 30.00 (8.1) | 8.17 (2.1) | **+21.83** |
| V2T2 | Reading: Literary | 30.00 (8.1) | 50.87 (12.9) | **-20.87** |
| V2T2 | Reading: Informational | 30.00 (8.1) | 31.11 (7.9) | -1.11 |
| V2T2 | Reading: Vocabulary | 10.00 (2.7) | 7.45 (1.9) | +2.55 |
| V2T2 | Writing | 30.00 (8.1) | 10.57 (2.7) | **+19.43** |
| V2T3 | Reading: Literary | 30.00 (8.1) | 49.63 (12.9) | **-19.63** |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T3 | Reading: Informational | 30.00 (8.1) | 33.07 (8.6) | -3.07 |
| V2T3 | Reading: Vocabulary | 10.00 (2.7) | 3.59 (0.9) | +6.41 |
| V2T3 | Writing | 30.00 (8.1) | 13.70 (3.6) | **+16.30** |

Note: N is an abbreviation for Number.

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.

[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 27.

[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 38. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – ELA Grade Six*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Reading: Literary | 20.00 (5.4) | 10.45 (2.8) | +9.55 |
| V1T1 | Reading: Informational | 40.00 (10.8) | 64.05 (17.2) | **-24.05** |
| V1T1 | Reading: Vocabulary | 10.00 (2.7) | 14.80 (4.0) | -4.80 |
| V1T1 | Writing | 30.00 (8.1) | 12.84 (3.4) | **+17.16** |
| V1T2 | Reading: Literary | 20.00 (5.4) | 10.40 (2.8) | +9.6 |
| V1T2 | Reading: Informational | 40.00 (10.8) | 52.90 (14.2) | -12.90 |
| V1T2 | Reading: Vocabulary | 10.00 (2.7) | 19.46 (5.2) | -9.46 |
| V1T2 | Writing | 30.00 (8.1) | 17.25 (4.6) | **+12.75** |
| V1T3 | Reading: Literary | 20.00 (5.4) | 12.05 (3.2) | +7.95 |
| V1T3 | Reading: Informational | 40.00 (10.8) | 55.58 (14.8) | **-15.58** |
| V1T3 | Reading: Vocabulary | 10.00 (2.7) | 18.02 (4.8) | -8.02 |
| V1T3 | Writing | 30.00 (8.1) | 14.35 (3.8) | **+15.65** |
| V2T1 | Reading: Literary | 20.00 (5.4) | 16.47 (4.4) | +3.53 |
| V2T1 | Reading: Informational | 40.00 (10.8) | 54.07 (14.6) | **-14.07** |
| V2T1 | Reading: Vocabulary | 10.00 (2.7) | 14.68 (4.0) | -4.68 |
| V2T1 | Writing | 30.00 (8.1) | 14.78 (4.0) | **+15.22** |
| V2T2 | Reading: Literary | 20.00 (5.4) | 16.29 (4.4) | +3.71 |
| V2T2 | Reading: Informational | 40.00 (10.8) | 42.91 (11.6) | -2.91 |
| V2T2 | Reading: Vocabulary | 10.00 (2.7) | 19.45 (5.3) | -9.45 |
| V2T2 | Writing | 30.00 (8.1) | 21.36 (5.8) | +8.64 |
| V2T3 | Reading: Literary | 20.00 (5.4) | 18.07 (4.8) | +1.93 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T3 | Reading: Informational | 40.00 (10.8) | 45.33 (12.1) | -5.33 |
| V2T3 | Reading: Vocabulary | 10.00 (2.7) | 18.02 (4.8) | -8.02 |
| V2T3 | Writing | 30.00 (8.1) | 18.58 (5.0) | **+11.42** |

Note: N is an abbreviation for Number.

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.

[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 27.

[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 39. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – ELA Grade Seven*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Reading: Literary | 20.00 (5.4) | 23.86 (6.4) | -3.86 |
| V1T1 | Reading: Informational | 40.00 (10.8) | 45.29 (12.2) | -5.29 |
| V1T1 | Reading: Vocabulary | 10.00 (2.7) | 11.66 (3.1) | -1.66 |
| V1T1 | Writing | 30.00 (8.1) | 19.19 (5.2) | **+10.81** |
| V1T2 | Reading: Literary | 20.00 (5.4) | 30.33 (8.2) | **-10.33** |
| V1T2 | Reading: Informational | 40.00 (10.8) | 40.23 910.9) | -0.23 |
| V1T2 | Reading: Vocabulary | 10.00 (2.7) | 8.08 (2.2) | +1.92 |
| V1T2 | Writing | 30.00 (8.1) | 21.36 (5.8) | +8.64 |
| V1T3 | Reading: Literary | 20.00 (5.4) | 32.67 (8.8) | **-12.67** |
| V1T3 | Reading: Informational | 40.00 (10.8) | 35.85 (9.7) | +4.15 |
| V1T3 | Reading: Vocabulary | 10.00 (2.7) | 8.64 (2.3) | +1.36 |
| V1T3 | Writing | 30.00 (8.1) | 22.84 (6.2) | +7.16 |
| V2T1 | Reading: Literary | 20.00 (5.4) | 20.95 (5.7) | -0.95 |
| V2T1 | Reading: Informational | 40.00 (10.8) | 47.33 (12.8) | -7.33 |
| V2T1 | Reading: Vocabulary | 10.00 (2.7) | 11.98 (3.2) | -1.98 |
| V2T1 | Writing | 30.00 (8.1) | 19.74 (5.3) | **+10.26** |
| V2T2 | Reading: Literary | 20.00 (5.4) | 27.75 (7.5) | -7.75 |
| V2T2 | Reading: Informational | 40.00 (10.8) | 42.16 (11.4) | -2.16 |
| V2T2 | Reading: Vocabulary | 10.00 (2.7) | 8.26 (2.2) | +1.74 |
| V2T2 | Writing | 30.00 (8.1) | 21.84 (5.9) | +8.16 |
| V2T3 | Reading: Literary | 20.00 (5.4) | 30.04 (8.1) | **-10.04** |
| V2T3 | Reading: Informational | 40.00 (10.8) | 37.61 (10.2) | +2.39 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T3 | Reading: Vocabulary | 10.00 (2.7) | 8.79 (2.4) | +1.21 |
| V2T3 | Writing | 30.00 (8.1) | 23.55 (6.4) | +6.45 |

Note: N is an abbreviation for Number.

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.

[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 27.

[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 40. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – ELA Grade Eight*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Reading: Literary | 20.00 (5.4) | 28.62 (7.7) | -8.62 |
| V1T1 | Reading: Informational | 40.00 (10.8) | 50.07 (13.5) | **-10.07** |
| V1T1 | Reading: Vocabulary | 10.00 (2.7) | 14.64 (4.0) | -4.64 |
| V1T1 | Writing | 30.00 (8.1) | 8.02 (2.2) | **+21.98** |
| V1T2 | Reading: Literary | 20.00 (5.4) | 32.49 (8.8) | **-12.49** |
| V1T2 | Reading: Informational | 40.00 (10.8) | 45.85 (12.4) | -5.85 |
| V1T2 | Reading: Vocabulary | 10.00 (2.7) | 11.47 (3.1) | -1.47 |
| V1T2 | Writing | 30.00 (8.1) | 12.23 (3.3) | **+17.77** |
| V1T3 | Reading: Literary | 20.00 (5.4) | 29.42 (7.9) | -9.42 |
| V1T3 | Reading: Informational | 40.00 (10.8) | 44.77 (12.0) | -4.77 |
| V1T3 | Reading: Vocabulary | 10.00 (2.7) | 14.71 (3.9) | -4.71 |
| V1T3 | Writing | 30.00 (8.1) | 11.09 (3.0) | **+18.91** |
| V2T1 | Reading: Literary | 20.00 (5.4) | 19.97 (5.4) | +0.03 |
| V2T1 | Reading: Informational | 40.00 (10.8) | 56.97 (15.4) | **-16.97** |
| V2T1 | Reading: Vocabulary | 10.00 (2.7) | 11.51 (3.1) | -1.51 |
| V2T1 | Writing | 30.00 (8.1) | 11.55 (3.1) | **+18.45** |
| V2T2 | Reading: Literary | 20.00 (5.4) | 23.94 (6.5) | -3.94 |
| V2T2 | Reading: Informational | 40.00 (10.8) | 52.69 (14.2) | **-12.69** |
| V2T2 | Reading: Vocabulary | 10.00 (2.7) | 8.36 (2.3) | +1.64 |
| V2T2 | Writing | 30.00 (8.1) | 15.00 (4.1) | **+15.00** |
| V2T3 | Reading: Literary | 20.00 (5.4) | 20.68 (5.5) | -0.68 |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T3 | Reading: Informational | 40.00 (10.8) | 51.79 (13.8) | **-11.79** |
| V2T3 | Reading: Vocabulary | 10.00 (2.7) | 11.57 (3.1) | -1.57 |
| V2T3 | Writing | 30.00 (8.1) | 15.97 (4.2) | **+14.03** |

Note: N is an abbreviation for Number.

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.

[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 27.

[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

*Table 41. Mean Percentage of Partially and Fully Linked Item Evaluations Across Panelists by Domain and Form – ELA Grade Eleven*

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V1T1 | Reading: Literary | 15.00 (4.1) | 22.99 (6.2) | -7.99 |
| V1T1 | Reading: Informational | 45.00 (12.2) | 56.13 (15.0) | **-11.13** |
| V1T1 | Reading: Vocabulary | 10.00 (2.7) | 16.41 (4.4) | -6.41 |
| V1T1 | Writing | 30.00 (8.1) | 4.47 (1.2) | **+25.53** |
| V1T2 | Reading: Literary | 15.00 (4.1) | 25.21 (6.8) | **-10.21** |
| V1T2 | Reading: Informational | 45.00 (12.2) | 53.13 (14.2) | -8.13 |
| V1T2 | Reading: Vocabulary | 10.00 (2.7) | 17.92 (4.8) | -7.92 |
| V1T2 | Writing | 30.00 (8.1) | 4.67 (1.3) | **+25.33** |
| V1T3 | Reading: Literary | 15.00 (4.1) | 22.99 (6.2) | -7.99 |
| V1T3 | Reading: Informational | 45.00 (12.2) | 53.90 (14.4) | -8.90 |
| V1T3 | Reading: Vocabulary | 10.00 (2.7) | 14.93 (4.0) | -4.93 |
| V1T3 | Writing | 30.00 (8.1) | 8.18 (2.2) | **+21.82** |
| V2T1 | Reading: Literary | 15.00 (4.1) | 17.04 (4.6) | -2.04 |
| V2T1 | Reading: Informational | 45.00 (12.2) | 60.74 (16.4) | **-15.74** |
| V2T1 | Reading: Vocabulary | 10.00 (2.7) | 13.33 (3.6) | -3.33 |
| V2T1 | Writing | 30.00 (8.1) | 8.89 (2.4) | **+21.11** |
| V2T2 | Reading: Literary | 15.00 (4.1) | 19.26 (5.2) | -4.26 |
| V2T2 | Reading: Informational | 45.00 (12.2) | 57.78 (15.6) | **-12.78** |
| V2T2 | Reading: Vocabulary | 10.00 (2.7) | 14.81 (4.0) | -4.81 |
| V2T2 | Writing | 30.00 (8.1) | 8.15 (2.2) | **+21.85** |

| Form | Domain | Blueprint % (N) of CAA Items [a] | Mean % (N) of Item Evaluations on CAA [b] | % of Item Evaluations +/- Blueprint [c] |
|---|---|---|---|---|
| V2T3 | Reading: Literary | 15.00 (4.1) | 17.03 (4.6) | -2.03 |
| V2T3 | Reading: Informational | 45.00 (12.2) | 58.52 (15.8) | **-13.52** |
| V2T3 | Reading: Vocabulary | 10.00 (2.7) | 11.85 (3.2) | 1.85 |
| V2T3 | Writing | 30.00 (8.1) | 12.59 (3.4) | **+17.41** |

Note: N is an abbreviation for Number.

[a] Values in parentheses denote the approximate number of items per domain on the CAA based on Blueprint target percentages where the number of items on each form is equal to 27.

[b] Values in parentheses denote the mean number of items rated as partially and fully linked per domain across panelists where the number of items on each form is equal to the mean number of items listed in parentheses in the last column of Table 27.

[c] Positive values indicate a lower percentage of items represented on the CAA in comparison to the CAA Blueprint while negative values indicate a greater percentage of items represented on the CAA in comparison to the CAA Blueprint.

## *Criterion 3c: Item Depth of Knowledge Represents Core Content Connectors*

The items on each assessment should reflect the range of cognitive complexity in the CCCs, as interpreted by the state. Since the CAA Blueprint does not indicate an intended depth of knowledge (DOK) target, this criterion was assessed by (1) evaluating how panelists assigned DOK to items by determining the distribution of DOK levels across items and (2) comparing the DOK level of the items to the consensus DOK level of the aligned CCCs identified by panelists. Panelists used the following DOK levels (Flowers et al., 2007) while evaluating the items (see Appendix A for the complete DOK level descriptions).

DOK 1 = Attention
DOK 2 = Memorize/recall
DOK 3 = Performance
DOK 4 = Comprehension
DOK 5 = Application
DOK 6 = Analysis, Synthesis, Evaluation

To examine the distribution of DOK levels across items, we used the DOK assigned by panelists to determine the frequency of items at each DOK. Tables 42 through 55 show the frequency of items assigned to each DOK level for each version and tier (i.e., form) by grade.

In mathematics (Tables 42 through 48), panelists rated most items, in general, as requiring DOK levels 2, 3, and 4. Except in grade eleven, none of the items were given a DOK level 1 or 6, and only a few items were given a DOK 5, the most in grade eleven. In general, roughly the same mean number of items at each DOK level was seen across each of the three tiers.

*Table 42. Distribution of Mean DOK Ratings Across Panelists by Form – Mathematics Grade Three*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 3.80 | 18.20 | 4.00 | 2.00 | 0.00 |
| V1T1 | SD | 0.00 | 2.17 | 2.77 | 1.00 | 0.00 | 0.00 |
| V1T1 | Percent | 0.00 | 14.39 | 68.94 | 15.15 | 1.52 | 0.00 |
| V1T2 | Mean | 0.00 | 3.00 | 18.40 | 5.80 | 2.00 | 0.00 |
| V1T2 | SD | 0.00 | 2.00 | 2.30 | 1.64 | 1.41 | 0.00 |
| V1T2 | Percent | 0.00 | 6.72 | 68.66 | 21.64 | 2.99 | 0.00 |
| V1T3 | Mean | 0.00 | 3.33 | 17.40 | 6.40 | 2.50 | 0.00 |
| V1T3 | SD | 0.00 | 2.52 | 3.29 | 0.89 | 0.71 | 0.00 |
| V1T3 | Percent | 0.00 | 7.46 | 64.93 | 23.88 | 3.73 | 0.00 |
| V2T1 | Mean | 0.00 | 4.40 | 17.80 | 4.00 | 1.00 | 0.00 |
| V2T1 | SD | 0.00 | 2.07 | 2.05 | 1.58 | 0.00 | 0.00 |
| V2T1 | Percent | 0.00 | 16.67 | 67.42 | 15.15 | 0.76 | 0.00 |
| V2T2 | Mean | 0.00 | 2.40 | 18.00 | 5.80 | 1.50 | 0.00 |
| V2T2 | SD | 0.00 | 2.07 | 2.92 | 2.77 | 0.71 | 0.00 |
| V2T2 | Percent | 0.00 | 8.96 | 67.16 | 21.64 | 2.24 | 0.00 |
| V2T3 | Mean | 0.00 | 2.60 | 17.00 | 6.40 | 2.00 | 0.00 |
| V2T3 | SD | 0.00 | 2.51 | 2.92 | 1.52 | 1.41 | 0.00 |
| V2T3 | Percent | 0.00 | 9.70 | 63.43 | 23.88 | 2.99 | 0.00 |

*Table 43. Distribution of Mean DOK Ratings Across Panelists by Form – Mathematics Grade Four*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 3.00 | 19.00 | 9.40 | 0.00 | 0.00 |
| V1T1 | SD | 0.00 | 1.83 | 3.92 | 9.66 | 0.00 | 0.00 |
| V1T1 | Percent | 0.00 | 8.89 | 56.30 | 34.81 | 0.00 | 0.00 |
| V1T2 | Mean | 0.00 | 1.33 | 20.25 | 9.80 | 1.00 | 0.00 |
| V1T2 | SD | 0.00 | 0.58 | 2.87 | 9.88 | 0.00 | 0.00 |
| V1T2 | Percent | 0.00 | 2.96 | 60.00 | 36.30 | 0.74 | 0.00 |
| V1T3 | Mean | 0.00 | 2.33 | 18.25 | 10.80 | 1.00 | 0.00 |
| V1T3 | SD | 0.00 | 0.58 | 3.40 | 9.50 | 0.00 | 0.00 |
| V1T3 | Percent | 0.00 | 5.19 | 54.07 | 40.00 | 0.74 | 0.00 |
| V2T1 | Mean | 0.00 | 3.80 | 18.00 | 8.80 | 0.00 | 0.00 |
| V2T1 | SD | 0.00 | 2.59 | 2.94 | 9.88 | 0.00 | 0.00 |
| V2T1 | Percent | 0.00 | 14.07 | 53.33 | 32.59 | 0.00 | 0.00 |
| V2T2 | Mean | 0.00 | 2.75 | 19.25 | 9.20 | 1.00 | 0.00 |
| V2T2 | SD | 0.00 | 1.50 | 2.63 | 10.16 | 0.00 | 0.00 |
| V2T2 | Percent | 0.00 | 8.15 | 57.04 | 34.07 | 0.74 | 0.00 |
| V2T3 | Mean | 0.00 | 3.50 | 17.25 | 10.20 | 1.00 | 0.00 |
| V2T3 | SD | 0.00 | 1.73 | 2.87 | 9.73 | 0.00 | 0.00 |
| V2T3 | Percent | 0.00 | 10.37 | 51.11 | 37.78 | 0.74 | 0.00 |

*Table 44. Distribution of Mean DOK Ratings Across Panelists by Form – Mathematics Grade Five*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 5.00 | 15.00 | 6.00 | 2.00 | 0.00 |
| V1T1 | SD | 0.00 | 3.16 | 4.30 | 3.24 | 0.00 | 0.00 |
| V1T1 | Percent | 0.00 | 18.94 | 56.82 | 22.73 | 1.52 | 0.00 |
| V1T2 | Mean | 0.00 | 4.80 | 15.60 | 6.00 | 1.00 | 0.00 |
| V1T2 | SD | 0.00 | 4.32 | 5.73 | 4.80 | 0.00 | 0.00 |
| V1T2 | Percent | 0.00 | 18.05 | 58.65 | 22.56 | 0.75 | 0.00 |
| V1T3 | Mean | 0.00 | 4.60 | 15.00 | 6.60 | 2.00 | 0.00 |
| V1T3 | SD | 0.00 | 4.34 | 4.53 | 4.22 | 0.00 | 0.00 |
| V1T3 | Percent | 0.00 | 17.29 | 56.39 | 24.81 | 1.50 | 0.00 |
| V2T1 | Mean | 0.00 | 5.40 | 14.60 | 6.20 | 2.00 | 0.00 |
| V2T1 | SD | 0.00 | 4.51 | 5.18 | 3.70 | 0.00 | 0.00 |
| V2T1 | Percent | 0.00 | 20.30 | 54.89 | 23.31 | 1.50 | 0.00 |
| V2T2 | Mean | 0.00 | 5.20 | 15.20 | 6.20 | 1.00 | 0.00 |
| V2T2 | SD | 0.00 | 5.63 | 6.06 | 5.22 | 0.00 | 0.00 |
| V2T2 | Percent | 0.00 | 19.40 | 56.72 | 23.13 | 0.75 | 0.00 |
| V2T3 | Mean | 0.00 | 5.00 | 14.60 | 6.80 | 2.00 | 0.00 |
| V2T3 | SD | 0.00 | 5.70 | 5.22 | 4.82 | 0.00 | 0.00 |
| V2T3 | Percent | 0.00 | 18.66 | 54.48 | 25.37 | 1.49 | 0.00 |

*Table 45. Distribution of Mean DOK Ratings Across Panelists by Form – Mathematics Grade Six*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 6.33 | 17.50 | 3.80 | 0.00 | 0.00 |
| V1T1 | SD | 0.00 | 2.73 | 3.45 | 3.11 | 0.00 | 0.00 |
| V1T1 | Percent | 0.00 | 23.46 | 64.81 | 11.73 | 0.00 | 0.00 |
| V1T2 | Mean | 0.00 | 5.33 | 17.83 | 4.60 | 0.00 | 0.00 |
| V1T2 | SD | 0.00 | 2.16 | 3.87 | 3.78 | 0.00 | 0.00 |
| V1T2 | Percent | 0.00 | 19.75 | 66.05 | 14.20 | 0.00 | 0.00 |
| V1T3 | Mean | 0.00 | 5.33 | 17.17 | 5.40 | 0.00 | 0.00 |
| V1T3 | SD | 0.00 | 3.39 | 3.71 | 2.51 | 0.00 | 0.00 |
| V1T3 | Percent | 0.00 | 19.75 | 63.58 | 16.67 | 0.00 | 0.00 |
| V2T1 | Mean | 0.00 | 9.67 | 14.17 | 3.60 | 1.00 | 0.00 |
| V2T1 | SD | 0.00 | 3.27 | 2.93 | 2.70 | 0.00 | 0.00 |
| V2T1 | Percent | 0.00 | 35.80 | 52.47 | 11.11 | 0.62 | 0.00 |
| V2T2 | Mean | 0.00 | 8.67 | 14.50 | 4.40 | 1.00 | 0.00 |
| V2T2 | SD | 0.00 | 3.39 | 3.45 | 3.51 | 0.00 | 0.00 |
| V2T2 | Percent | 0.00 | 32.10 | 53.70 | 13.58 | 0.62 | 0.00 |
| V2T3 | Mean | 0.00 | 8.67 | 13.83 | 5.20 | 1.00 | 0.00 |
| V2T3 | SD | 0.00 | 4.41 | 3.25 | 2.17 | 0.00 | 0.00 |
| V2T3 | Percent | 0.00 | 32.10 | 51.23 | 16.05 | 0.62 | 0.00 |

*Table 46. Distribution of Mean DOK Ratings Across Panelists by Form – Mathematics Grade Seven*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 8.80 | 15.00 | 7.00 | 0.00 | 0.00 |
| V1T1 | SD | 0.00 | 5.76 | 3.29 | 4.97 | 0.00 | 0.00 |
| V1T1 | Percent | 0.00 | 27.16 | 55.56 | 17.28 | 0.00 | 0.00 |
| V1T2 | Mean | 0.00 | 7.40 | 15.17 | 5.33 | 1.00 | 0.00 |
| V1T2 | SD | 0.00 | 5.73 | 3.19 | 4.18 | 0.00 | 0.00 |
| V1T2 | Percent | 0.00 | 22.84 | 56.17 | 19.75 | 1.23 | 0.00 |
| V1T3 | Mean | 0.00 | 7.60 | 15.17 | 6.60 | 0.00 | 0.00 |
| V1T3 | SD | 0.00 | 6.91 | 3.97 | 4.77 | 0.00 | 0.00 |
| V1T3 | Percent | 0.00 | 23.46 | 56.17 | 20.37 | 0.00 | 0.00 |
| V2T1 | Mean | 0.00 | 8.20 | 15.17 | 7.50 | 0.00 | 0.00 |
| V2T1 | SD | 0.00 | 5.36 | 2.93 | 5.45 | 0.00 | 0.00 |
| V2T1 | Percent | 0.00 | 25.31 | 56.17 | 18.52 | 0.00 | 0.00 |
| V2T2 | Mean | 0.00 | 6.80 | 15.33 | 5.67 | 1.00 | 0.00 |
| V2T2 | SD | 0.00 | 4.76 | 2.42 | 4.84 | 0.00 | 0.00 |
| V2T2 | Percent | 0.00 | 20.99 | 56.79 | 20.99 | 1.23 | 0.00 |
| V2T3 | Mean | 0.00 | 7.00 | 15.33 | 7.00 | 0.00 | 0.00 |
| V2T3 | SD | 0.00 | 5.74 | 3.20 | 5.48 | 0.00 | 0.00 |
| V2T3 | Percent | 0.00 | 21.60 | 56.79 | 21.60 | 0.00 | 0.00 |

*Table 47. Distribution of Mean DOK Ratings Across Panelists by Form – Mathematics Grade Eight*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 6.33 | 15.17 | 6.20 | 1.00 | 0.00 |
| V1T1 | SD | 0.00 | 3.88 | 2.56 | 3.27 | 0.00 | 0.00 |
| V1T1 | Percent | 0.00 | 23.46 | 56.17 | 19.14 | 1.23 | 0.00 |
| V1T2 | Mean | 0.00 | 5.80 | 15.50 | 7.60 | 1.00 | 0.00 |
| V1T2 | SD | 0.00 | 3.96 | 3.94 | 4.22 | 0.00 | 0.00 |
| V1T2 | Percent | 0.00 | 17.90 | 57.41 | 23.46 | 1.23 | 0.00 |
| V1T3 | Mean | 0.00 | 5.60 | 15.17 | 8.20 | 1.00 | 0.00 |
| V1T3 | SD | 0.00 | 3.85 | 3.66 | 4.44 | 0.00 | 0.00 |
| V1T3 | Percent | 0.00 | 17.28 | 56.17 | 25.31 | 1.23 | 0.00 |
| V2T1 | Mean | 0.00 | 5.83 | 13.67 | 7.00 | 3.00 | 0.00 |
| V2T1 | SD | 0.00 | 2.23 | 2.80 | 3.35 | 0.00 | 0.00 |
| V2T1 | Percent | 0.00 | 21.60 | 50.62 | 25.93 | 1.85 | 0.00 |
| V2T2 | Mean | 0.00 | 4.33 | 14.00 | 8.17 | 3.00 | 0.00 |
| V2T2 | SD | 0.00 | 2.73 | 3.69 | 4.40 | 0.00 | 0.00 |
| V2T2 | Percent | 0.00 | 16.05 | 51.85 | 30.25 | 1.85 | 0.00 |
| V2T3 | Mean | 0.00 | 4.17 | 13.67 | 8.67 | 3.00 | 0.00 |
| V2T3 | SD | 0.00 | 2.64 | 3.44 | 4.63 | 0.00 | 0.00 |
| V2T3 | Percent | 0.00 | 15.43 | 50.62 | 32.10 | 1.85 | 0.00 |

*Table 48. Distribution of Mean DOK Ratings Across Panelists by Form – Mathematics Grade Eleven*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 1.00 | 4.25 | 10.60 | 5.60 | 4.80 | 4.00 |
| V1T1 | SD | 0.00 | 1.71 | 4.04 | 3.58 | 3.27 | 1.00 |
| V1T1 | Percent | 0.74 | 12.59 | 39.26 | 20.74 | 17.78 | 8.89 |
| V1T2 | Mean | 0.00 | 3.20 | 10.80 | 5.40 | 5.20 | 4.00 |
| V1T2 | SD | 0.00 | 2.17 | 3.96 | 2.79 | 3.56 | 1.00 |
| V1T2 | Percent | 0.00 | 11.85 | 40.00 | 20.00 | 19.26 | 8.89 |
| V1T3 | Mean | 0.00 | 4.50 | 9.80 | 5.60 | 5.60 | 4.00 |
| V1T3 | SD | 0.00 | 1.73 | 4.09 | 2.88 | 3.21 | 1.00 |
| V1T3 | Percent | 0.00 | 13.33 | 36.30 | 20.74 | 20.74 | 8.89 |
| V2T1 | Mean | 1.00 | 4.50 | 7.40 | 6.60 | 5.80 | 4.25 |
| V2T1 | SD | 0.00 | 2.52 | 3.78 | 4.93 | 4.44 | 2.22 |
| V2T1 | Percent | 0.74 | 13.33 | 27.41 | 24.44 | 21.48 | 12.59 |
| V2T2 | Mean | 0.00 | 3.40 | 7.60 | 6.40 | 6.20 | 4.25 |
| V2T2 | SD | 0.00 | 3.78 | 3.65 | 4.62 | 4.66 | 2.22 |
| V2T2 | Percent | 0.00 | 12.59 | 28.15 | 23.70 | 22.96 | 12.59 |
| V2T3 | Mean | 0.00 | 4.75 | 6.60 | 6.60 | 6.60 | 4.25 |
| V2T3 | SD | 0.00 | 2.99 | 3.78 | 4.16 | 4.72 | 2.22 |
| V2T3 | Percent | 0.00 | 14.07 | 24.44 | 24.44 | 24.44 | 12.59 |

A similar pattern of DOK levels is seen in Tables 49 through 55 for ELA, with the majority of items being assigned a DOK level of 2, 3, or 4. However, compared to mathematics, a larger number of items were assigned a DOK level 5, two items were given a DOK level 1, and except for grade three and eleven, at least one item in every grade was assigned a DOK level 6. In general, roughly the same mean number of items at each DOK level was seen across each of the three tiers.

*Table 49. Distribution of Mean DOK Ratings Across Panelists by Form – ELA Grade Three*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 5.80 | 10.40 | 9.00 | 2.25 | 0.00 |
| V1T1 | SD | 0.00 | 4.82 | 2.61 | 2.45 | 0.50 | 0.00 |
| V1T1 | Percent | 0.00 | 21.48 | 38.52 | 33.33 | 6.67 | 0.00 |
| V1T2 | Mean | 0.00 | 5.20 | 10.20 | 9.40 | 2.75 | 0.00 |
| V1T2 | SD | 0.00 | 3.83 | 2.17 | 2.41 | 0.96 | 0.00 |
| V1T2 | Percent | 0.00 | 19.26 | 37.78 | 34.81 | 8.15 | 0.00 |
| V1T3 | Mean | 0.00 | 3.80 | 11.80 | 9.20 | 2.75 | 0.00 |
| V1T3 | SD | 0.00 | 3.56 | 2.68 | 2.77 | 0.50 | 0.00 |
| V1T3 | Percent | 0.00 | 14.07 | 43.70 | 34.07 | 8.15 | 0.00 |
| V2T1 | Mean | 1.00 | 5.60 | 9.20 | 11.60 | 1.00 | 0.00 |
| V2T1 | SD | 0.00 | 4.83 | 2.68 | 3.44 | 0.00 | 0.00 |
| V2T1 | Percent | 0.74 | 20.74 | 34.07 | 42.96 | 1.48 | 0.00 |
| V2T2 | Mean | 1.00 | 5.00 | 9.00 | 12.00 | 1.00 | 0.00 |
| V2T2 | SD | 0.00 | 4.12 | 3.81 | 3.74 | 0.00 | 0.00 |
| V2T2 | Percent | 0.74 | 18.52 | 33.33 | 44.44 | 2.96 | 0.00 |
| V2T3 | Mean | 1.00 | 3.60 | 10.60 | 11.80 | 1.33 | 0.00 |
| V2T3 | SD | 0.00 | 3.78 | 3.36 | 3.27 | 0.58 | 0.00 |
| V2T3 | Percent | 0.74 | 13.33 | 39.26 | 43.70 | 2.96 | 0.00 |

*Table 50. Distribution of Mean DOK Ratings Across Panelists by Form – ELA Grade Four*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 1.00 | 3.40 | 9.20 | 12.40 | 2.00 | 0.00 |
| V1T1 | SD | 0.00 | 2.70 | 4.87 | 5.64 | 1.41 | 0.00 |
| V1T1 | Percent | 0.75 | 12.69 | 34.33 | 46.27 | 5.97 | 0.00 |
| V1T2 | Mean | 0.00 | 2.60 | 9.00 | 12.60 | 2.60 | 0.00 |
| V1T2 | SD | 0.00 | 2.07 | 4.64 | 5.41 | 2.30 | 0.00 |
| V1T2 | Percent | 0.00 | 9.70 | 33.58 | 47.01 | 9.70 | 0.00 |
| V1T3 | Mean | 0.00 | 3.20 | 7.80 | 13.60 | 2.50 | 1.00 |
| V1T3 | SD | 0.00 | 2.77 | 3.83 | 4.39 | 1.00 | 0.00 |
| V1T3 | Percent | 0.00 | 11.94 | 29.10 | 50.75 | 7.46 | 0.75 |
| V2T1 | Mean | 1.00 | 2.80 | 10.40 | 11.40 | 3.00 | 1.00 |
| V2T1 | SD | 0.00 | 1.79 | 5.13 | 4.77 | 2.65 | 0.00 |
| V2T1 | Percent | 0.75 | 10.45 | 38.81 | 42.54 | 6.72 | 0.75 |
| V2T2 | Mean | 0.00 | 2.00 | 10.20 | 11.60 | 2.80 | 1.00 |
| V2T2 | SD | 0.00 | 1.22 | 5.07 | 4.22 | 2.95 | 0.00 |
| V2T2 | Percent | 0.00 | 7.46 | 38.06 | 43.28 | 10.45 | 0.75 |
| V2T3 | Mean | 0.00 | 2.60 | 9.00 | 12.60 | 3.67 | 2.00 |
| V2T3 | SD | 0.00 | 2.07 | 4.12 | 3.36 | 2.08 | 0.00 |
| V2T3 | Percent | 0.00 | 9.70 | 33.58 | 47.01 | 8.21 | 1.49 |

*Table 51. Distribution of Mean DOK Ratings Across Panelists by Form – ELA Grade Five*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 4.50 | 7.00 | 16.00 | 2.50 | 0.00 |
| V1T1 | SD | 0.00 | 4.95 | 4.74 | 6.20 | 0.58 | 0.00 |
| V1T1 | Percent | 0.00 | 6.72 | 26.12 | 59.70 | 7.46 | 0.00 |
| V1T2 | Mean | 1.00 | 7.00 | 6.40 | 15.20 | 3.60 | 0.00 |
| V1T2 | SD | 0.00 | 0.00 | 4.72 | 5.50 | 1.95 | 0.00 |
| V1T2 | Percent | 0.75 | 5.22 | 23.88 | 56.72 | 13.43 | 0.00 |
| V1T3 | Mean | 0.00 | 6.00 | 6.00 | 15.40 | 4.00 | 1.00 |
| V1T3 | SD | 0.00 | 0.00 | 4.30 | 4.98 | 1.22 | 0.00 |
| V1T3 | Percent | 0.00 | 4.48 | 22.39 | 57.46 | 14.93 | 0.75 |
| V2T1 | Mean | 0.00 | 3.00 | 6.20 | 16.20 | 3.20 | 0.00 |
| V2T1 | SD | 0.00 | 2.83 | 4.32 | 6.38 | 0.84 | 0.00 |
| V2T1 | Percent | 0.00 | 4.48 | 23.13 | 60.45 | 11.94 | 0.00 |
| V2T2 | Mean | 1.00 | 4.00 | 5.60 | 15.40 | 4.80 | 0.00 |
| V2T2 | SD | 0.00 | 0.00 | 4.34 | 5.77 | 1.92 | 0.00 |
| V2T2 | Percent | 0.75 | 2.99 | 20.90 | 57.46 | 17.91 | 0.00 |
| V2T3 | Mean | 0.00 | 3.00 | 5.20 | 15.60 | 5.20 | 1.00 |
| V2T3 | SD | 0.00 | 0.00 | 3.83 | 5.18 | 1.10 | 0.00 |
| V2T3 | Percent | 0.00 | 2.24 | 19.40 | 58.21 | 19.40 | 0.75 |

*Table 52. Distribution of Mean DOK Ratings Across Panelists by Form – ELA Grade Six*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 2.60 | 4.25 | 16.83 | 4.67 | 1.50 |
| V1T1 | SD | 0.00 | 2.07 | 0.50 | 3.37 | 4.08 | 0.71 |
| V1T1 | Percent | 0.00 | 8.02 | 10.49 | 62.35 | 17.28 | 1.85 |
| V1T2 | Mean | 0.00 | 2.60 | 5.00 | 15.00 | 6.17 | 1.00 |
| V1T2 | SD | 0.00 | 2.07 | 0.82 | 3.03 | 4.54 | 0.00 |
| V1T2 | Percent | 0.00 | 8.02 | 12.35 | 55.56 | 22.84 | 1.23 |
| V1T3 | Mean | 0.00 | 2.60 | 4.00 | 16.00 | 5.67 | 1.50 |
| V1T3 | SD | 0.00 | 2.07 | 0.82 | 3.29 | 4.41 | 0.71 |
| V1T3 | Percent | 0.00 | 8.02 | 9.88 | 59.26 | 20.99 | 1.85 |
| V2T1 | Mean | 0.00 | 2.25 | 4.20 | 16.83 | 4.83 | 2.00 |
| V2T1 | SD | 0.00 | 1.89 | 2.17 | 4.22 | 3.66 | 0.00 |
| V2T1 | Percent | 0.00 | 5.56 | 12.96 | 62.35 | 17.90 | 1.23 |
| V2T2 | Mean | 0.00 | 2.25 | 4.80 | 15.00 | 6.33 | 1.00 |
| V2T2 | SD | 0.00 | 1.89 | 2.68 | 3.90 | 4.18 | 0.00 |
| V2T2 | Percent | 0.00 | 5.56 | 14.81 | 55.56 | 23.46 | 0.62 |
| V2T3 | Mean | 0.00 | 2.25 | 4.00 | 16.00 | 5.83 | 2.00 |
| V2T3 | SD | 0.00 | 1.89 | 2.00 | 3.79 | 4.22 | 0.00 |
| V2T3 | Percent | 0.00 | 5.56 | 12.35 | 59.26 | 21.60 | 1.23 |

*Table 53. Distribution of Mean DOK Ratings Across Panelists by Form – ELA Grade Seven*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 1.50 | 2.25 | 17.67 | 6.17 | 7.00 |
| V1T1 | SD | 0.00 | 0.71 | 1.89 | 5.54 | 4.40 | 0.00 |
| V1T1 | Percent | 0.00 | 1.85 | 5.56 | 65.43 | 22.84 | 4.32 |
| V1T2 | Mean | 0.00 | 1.00 | 2.75 | 16.17 | 7.67 | 3.50 |
| V1T2 | SD | 0.00 | 0.00 | 2.87 | 4.62 | 4.89 | 3.54 |
| V1T2 | Percent | 0.00 | 0.62 | 6.79 | 59.88 | 28.40 | 4.32 |
| V1T3 | Mean | 0.00 | 1.00 | 2.00 | 15.83 | 8.33 | 4.00 |
| V1T3 | SD | 0.00 | 0.00 | 1.41 | 5.60 | 4.59 | 4.24 |
| V1T3 | Percent | 0.00 | 0.62 | 4.94 | 58.64 | 30.86 | 4.94 |
| V2T1 | Mean | 0.00 | 2.00 | 4.67 | 16.33 | 7.00 | 5.50 |
| V2T1 | SD | 0.00 | 0.00 | 4.73 | 3.39 | 1.87 | 6.36 |
| V2T1 | Percent | 0.00 | 2.47 | 8.64 | 60.49 | 21.60 | 6.79 |
| V2T2 | Mean | 0.00 | 1.00 | 5.33 | 14.83 | 8.80 | 5.50 |
| V2T2 | SD | 0.00 | 0.00 | 5.86 | 2.04 | 3.27 | 4.95 |
| V2T2 | Percent | 0.00 | 1.23 | 9.88 | 54.94 | 27.16 | 6.79 |
| V2T3 | Mean | 0.00 | 1.00 | 4.33 | 14.50 | 8.00 | 6.00 |
| V2T3 | SD | 0.00 | 0.00 | 4.16 | 3.45 | 4.29 | 5.66 |
| V2T3 | Percent | 0.00 | 1.23 | 8.02 | 53.70 | 29.63 | 7.41 |

*Table 54. Distribution of Mean DOK Ratings Across Panelists by Form – ELA Grade Eight*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 0.00 | 3.00 | 12.67 | 10.17 | 6.50 |
| V1T1 | SD | 0.00 | 0.00 | 1.83 | 5.05 | 4.75 | 6.36 |
| V1T1 | Percent | 0.00 | 0.00 | 7.41 | 46.91 | 37.65 | 8.02 |
| V1T2 | Mean | 0.00 | 0.00 | 3.25 | 12.67 | 10.17 | 6.00 |
| V1T2 | SD | 0.00 | 0.00 | 1.89 | 5.79 | 5.19 | 5.66 |
| V1T2 | Percent | 0.00 | 0.00 | 8.02 | 46.91 | 37.65 | 7.41 |
| V1T3 | Mean | 0.00 | 0.00 | 3.75 | 12.50 | 9.17 | 8.00 |
| V1T3 | SD | 0.00 | 0.00 | 3.10 | 5.01 | 4.71 | 7.07 |
| V1T3 | Percent | 0.00 | 0.00 | 9.32 | 46.58 | 34.16 | 9.94 |
| V2T1 | Mean | 0.00 | 0.00 | 5.00 | 12.00 | 10.83 | 5.00 |
| V2T1 | SD | 0.00 | 0.00 | 1.73 | 5.66 | 4.88 | 4.24 |
| V2T1 | Percent | 0.00 | 0.00 | 9.26 | 44.44 | 40.12 | 6.17 |
| V2T2 | Mean | 0.00 | 0.00 | 4.00 | 12.00 | 10.83 | 4.50 |
| V2T2 | SD | 0.00 | 0.00 | 2.94 | 6.07 | 5.04 | 3.54 |
| V2T2 | Percent | 0.00 | 0.00 | 9.88 | 44.44 | 40.12 | 5.56 |
| V2T3 | Mean | 0.00 | 0.00 | 6.00 | 11.83 | 9.83 | 6.50 |
| V2T3 | SD | 0.00 | 0.00 | 3.00 | 4.71 | 4.07 | 4.95 |
| V2T3 | Percent | 0.00 | 0.00 | 11.18 | 44.10 | 36.65 | 8.07 |

*Table 55. Distribution of Mean DOK Ratings Across Panelists by Form – ELA Grade Eleven*

| Form | Statistic | DOK 1 | DOK 2 | DOK 3 | DOK 4 | DOK 5 | DOK 6 |
|---|---|---|---|---|---|---|---|
| V1T1 | Mean | 0.00 | 4.60 | 7.60 | 8.80 | 6.00 | 0.00 |
| V1T1 | SD | 0.00 | 3.78 | 3.78 | 3.56 | 5.24 | 0.00 |
| V1T1 | Percent | 0.00 | 17.04 | 28.15 | 32.59 | 22.22 | 0.00 |
| V1T2 | Mean | 0.00 | 3.40 | 8.00 | 9.20 | 6.40 | 0.00 |
| V1T2 | SD | 0.00 | 3.05 | 2.92 | 4.38 | 4.39 | 0.00 |
| V1T2 | Percent | 0.00 | 12.59 | 29.63 | 34.07 | 23.70 | 0.00 |
| V1T3 | Mean | 0.00 | 3.20 | 7.20 | 9.60 | 7.00 | 0.00 |
| V1T3 | SD | 0.00 | 2.95 | 3.83 | 4.62 | 5.34 | 0.00 |
| V1T3 | Percent | 0.00 | 11.85 | 26.67 | 35.56 | 25.93 | 0.00 |
| V2T1 | Mean | 0.00 | 3.60 | 8.80 | 9.00 | 5.60 | 0.00 |
| V2T1 | SD | 0.00 | 3.05 | 4.32 | 3.00 | 5.73 | 0.00 |
| V2T1 | Percent | 0.00 | 13.33 | 32.59 | 33.33 | 20.74 | 0.00 |
| V2T2 | Mean | 0.00 | 2.40 | 9.20 | 9.40 | 6.00 | 0.00 |
| V2T2 | SD | 0.00 | 2.07 | 3.56 | 3.71 | 4.85 | 0.00 |
| V2T2 | Percent | 0.00 | 8.89 | 34.07 | 34.81 | 22.22 | 0.00 |
| V2T3 | Mean | 0.00 | 2.20 | 8.40 | 9.80 | 6.60 | 0.00 |
| V2T3 | SD | 0.00 | 2.17 | 3.97 | 3.42 | 5.73 | 0.00 |
| V2T3 | Percent | 0.00 | 8.15 | 31.11 | 36.30 | 24.44 | 0.00 |

In addition to noting the distribution of panelists' DOK ratings, we compared the DOK ratings panelists provided for the CCCs and CAA items to evaluate the degree of alignment between cognitive expectations. Tables 56 and 57 summarize the percentage of items (across panelists) that were assigned DOK levels that were lower, the same, or higher than the consensus DOK level required in the aligned CCC. Lower and higher DOK levels were at least one DOK level below or above the consensus DOK. For example, an item was given DOK Level 4 (Comprehension) and the consensus DOK for the CCC identified is a DOK Level 3 (Performance). For this item, the DOK level of the item is higher than the consensus DOK level for the CCC. This comparison was between all item DOK ratings and associated consensus CCC DOK ratings. It is reasonable, for Criterion 3c, to expect 50 percent of the items to be at the same or higher complexity level as the corresponding CCC.

Across all grades in mathematics (see Table 56), panelists assigned at least 50 percent of the items a DOK that was at the same or higher complexity level as the CCC they had identified. Grades four, five, eight, and eleven had the lowest percentage of items (less than 60%) at the same or higher level. In ELA (see Table 57), all grades except grade eleven met the expectation that 50 percent of the items should be at the same or higher complexity level as the identified CCC. For grade eleven, panelists rated 65 percent of items at a lower complexity level than the corresponding CCC DOK rating.

*Table 56. Mean Percentage of Linked Item Evaluations at Lower, Same, or Higher Levels of Complexity Compared to Related CCCs Across Panelists by Form – Mathematics*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Linked Item Evaluations with Lower Complexity | Mean % (N) of Linked Item Evaluations with Same Complexity | Mean % (N) of Linked Item Evaluations with Higher Complexity | Mean % (N) of Linked Item Evaluations with Same or Higher Complexity |
|---|---|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 24-25 | 15.83 (3.8) | 69.17 (16.6) | 15.00 (3.6) | 84.17 (20.2) |
| 3 | 5 | V1T2 | 25-26 | 11.02 (2.8) | 66.14 (16.8) | 22.83 (5.8) | 88.97 (22.6) |
| 3 | 5 | V1T3 | 25-26 | 11.81 (3.0) | 62.99 (16.0) | 25.20 (6.4) | 88.19 (22.4) |
| 3 | 5 | V2T1 | 22-24 | 16.38 (3.8) | 68.97 (16.0) | 14.66 (3.4) | 83.63 (19.4) |
| 3 | 5 | V2T2 | 24-26 | 11.38 (2.8) | 65.85 (16.2) | 22.76 (5.6) | 88.61 (21.8) |
| 3 | 5 | V2T3 | 24-26 | 12.20 (3.0) | 62.60 (15.4) | 25.20 (6.2) | 87.80 (21.6) |
| 4 | 5 | V1T1 | 23-26 | 44.26 (10.8) | 45.90 (11.2) | 9.84 (2.4) | 55.74 (13.6) |
| 4 | 5 | V1T2 | 26-27 | 41.98 (11.0) | 48.09 (12.6) | 9.92 (2.6) | 58.01 (15.2) |
| 4 | 5 | V1T3 | 26-27 | 40.46 (10.6) | 49.62 (13.0) | 9.92 (2.6) | 59.54 (15.6) |
| 4 | 5 | V2T1 | 24-26 | 51.24 (12.4) | 40.50 (9.8) | 8.26 (2.0) | 48.76 (11.8) |
| 4 | 5 | V2T2 | 25-27 | 48.46 (12.6) | 43.08 (11.2) | 8.46 (2.2) | 51.54 (13.4) |
| 4 | 5 | V2T3 | 25-27 | 46.92 (12.2) | 44.62 (11.6) | 8.46 (2.2) | 53.08 (13.8) |
| 5 | 5 | V1T1 | 23-25 | 40.83 (9.8) | 27.50 (6.6) | 31.67 (7.6) | 59.17 (14.2) |
| 5 | 5 | V1T2 | 22-25 | 40.00 (9.6) | 29.17 (7.0) | 30.83 (7.4) | 60.00 (14.4) |
| 5 | 5 | V1T3 | 23-26 | 37.10 (9.2) | 32.26 (8.0) | 30.65 (7.6) | 62.91 (15.6) |
| 5 | 5 | V2T1 | 21-25 | 43.48 (10.0) | 28.70 (6.6) | 27.83 (6.4) | 56.53 (13.0) |
| 5 | 5 | V2T2 | 20-25 | 42.61 (9.8) | 30.43 (7.0) | 26.96 (6.2) | 57.39 (13.2) |
| 5 | 5 | V2T3 | 21-26 | 39.50 (9.4) | 33.61 (8.0) | 26.89 (6.4) | 60.50 (14.4) |
| 6 | 6 | V1T1 | 26-27 | 14.29 (3.8) | 64.60 (17.3) | 21.12 (5.7) | 85.72 (23.0) |
| 6 | 6 | V1T2 | 26-27 | 11.80 (3.1) | 65.22 (17.5) | 22.98 (6.2) | 88.20 (23.7) |
| 6 | 6 | V1T3 | 26-27 | 12.42 (3.3) | 60.87 (16.3) | 26.71 (7.2) | 87.58 (23.5) |
| 6 | 6 | V2T1 | 25-26 | 18.01 (4.6) | 60.87 (15.7) | 21.12 (5.5) | 81.99 (21.2) |
| 6 | 6 | V2T2 | 25-26 | 15.53 (4.0) | 61.49 (15.8) | 22.98 (6.0) | 84.47 (21.8) |
| 6 | 6 | V2T3 | 25-26 | 16.15 (4.2) | 57.14 (14.8) | 26.71 (6.8) | 83.85 (21.6) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Linked Item Evaluations with Lower Complexity | Mean % (N) of Linked Item Evaluations with Same Complexity | Mean % (N) of Linked Item Evaluations with Higher Complexity | Mean % (N) of Linked Item Evaluations with Same or Higher Complexity |
|---|---|---|---|---|---|---|---|
| 7 | 6 | V1T1 | 27 | 40.12 (10.8) | 45.93 (12.4) | 14.20 (3.8) | 60.13 (16.2) |
| 7 | 6 | V1T2 | 27 | 39.51 (10.7) | 45.06 (12.2) | 15.43 (4.1) | 60.49 (16.3) |
| 7 | 6 | V1T3 | 27 | 38.89 (10.5) | 46.91 (12.7) | 14.20 (3.8) | 61.11 (16.5) |
| 7 | 6 | V2T1 | 27 | 41.98 (11.3) | 44.07 (11.9) | 14.20 (3.8) | 58.27 (15.7) |
| 7 | 6 | V2T2 | 27 | 41.36 (11.2) | 43.21 (11.6) | 15.43 (4.2) | 58.64 (15.8) |
| 7 | 6 | V2T3 | 27 | 40.74 (11.0) | 45.06 (12.2) | 14.20 (3.8) | 59.26 (16.0) |
| 8 | 6 | V1T1 | 26-27 | 48.13 (12.9) | 36.88 (9.8) | 15.00 (4.0) | 51.88 (13.8) |
| 8 | 6 | V1T2 | 27 | 46.30 (12.5) | 37.04 (10.0) | 16.67 (4.5) | 53.71 (14.5) |
| 8 | 6 | V1T3 | 27 | 47.53 (12.8) | 33.95 (9.2) | 18.52 (5.0) | 52.47 (14.2) |
| 8 | 6 | V2T1 | 26-27 | 41.88 (11.2) | 38.13 (10.2) | 20.00 (5.3) | 58.13 (15.5) |
| 8 | 6 | V2T2 | 27 | 40.12 (10.8) | 38.27 (10.4) | 21.60 (5.8) | 59.87 (16.2) |
| 8 | 6 | V2T3 | 27 | 41.36 (11.2) | 35.19 (9.5) | 23.46 (6.3) | 58.65 (15.8) |
| 11 | 5 | V1T1 | 26-27 | 46.21 (12.2) | 28.79 (7.6) | 25.00 (6.6) | 53.79 (14.2) |
| 11 | 5 | V1T2 | 26-27 | 49.62 (13.2) | 24.06 (6.4) | 26.32 (7.0) | 50.38 (13.4) |
| 11 | 5 | V1T3 | 26-27 | 46.62 (12.4) | 27.82 (7.4) | 25.56 (6.8) | 53.38 (14.2) |
| 11 | 5 | V2T1 | 26-27 | 46.62 (12.4) | 26.32 (7.0) | 27.07 (7.2) | 53.39 (14.2) |
| 11 | 5 | V2T2 | 26-27 | 50.00 (13.4) | 21.64 (5.8) | 28.36 (7.6) | 50.00 (13.4) |
| 11 | 5 | V2T3 | 26-27 | 47.01 (12.6) | 25.37 (6.8) | 27.61 (7.4) | 52.98 (14.2) |

Note: N is an abbreviation for Number.

[a] A range of values denotes the number of items with a valid CCC (i.e., a CCC was identified or the CCC was recorded accurately) assigned by panelists.

*Table 57. Mean Percentage of Linked Item Evaluations at Lower, Same, or Higher Levels of Complexity Compared to Related CCCs Across Panelists by Form – ELA*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Linked Item Evaluations with Lower Complexity | Mean % (N) of Linked Item Evaluations with Same Complexity | Mean % (N) of Linked Item Evaluations with Higher Complexity | Mean % (N) of Linked Item Evaluations with Same or Higher Complexity |
|---|---|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 22-25 | 33.88 (8.2) | 38.84 (9.4) | 27.27 (6.6) | 66.11 (16.0) |
| 3 | 5 | V1T2 | 22-25 | 31.40 (7.6) | 39.67 (9.6) | 28.93 (7.0) | 68.60 (16.6) |
| 3 | 5 | V1T3 | 23-25 | 34.17 (8.2) | 35.83 (8.6) | 30.00 (7.2) | 65.83 (15.8) |
| 3 | 5 | V2T1 | 23-26 | 33.06 (8.2) | 45.16 (11.2) | 21.77 (5.4) | 66.93 (16.6) |
| 3 | 5 | V2T2 | 23-26 | 30.65 (7.6) | 45.97 (11.4) | 23.39 (5.8) | 69.36 (17.2) |
| 3 | 5 | V2T3 | 24-26 | 33.33 (8.2) | 42.28 (10.4) | 24.39 (6.0) | 66.67 (16.4) |
| 4 | 5 | V1T1 | 19-25 | 48.12 (12.8) | 47.37 (12.6) | 4.51 (1.2) | 51.88 (13.8) |
| 4 | 5 | V1T2 | 21-23 | 41.22 (10.8) | 53.44 (14.0) | 5.34 (1.4) | 58.78 (15.4) |
| 4 | 5 | V1T3 | 20-23 | 40.16 (10.2) | 54.33 (13.8) | 5.51 (1.4) | 59.84 (15.2) |
| 4 | 5 | V2T1 | 20-23 | 50.76 (13.4) | 41.67 (11.0) | 7.58 (2.0) | 49.25 (13.0) |
| 4 | 5 | V2T2 | 21-24 | 43.85 (11.4) | 47.69 (12.4) | 8.46 (2.2) | 56.15 (14.6) |
| 4 | 5 | V2T3 | 21-24 | 42.86 (10.8) | 48.41 (12.2) | 8.73 (2.2) | 57.14 (14.4) |
| 5 | 5 | V1T1 | 23-27 | 48.46 (12.6) | 49.23 (12.8) | 2.31 (0.6) | 51.54 (13.4) |
| 5 | 5 | V1T2 | 23-27 | 45.31 (11.6) | 47.66 (12.2) | 7.03 (1.8) | 54.69 (14.0) |
| 5 | 5 | V1T3 | 24-27 | 41.98 (11.0) | 51.15 (13.4) | 6.87 (1.8) | 58.02 (15.2) |
| 5 | 5 | V2T1 | 23-27 | 42.64 (11.0) | 50.39 (13.0) | 6.98 (1.8) | 57.37 (14.8) |
| 5 | 5 | V2T2 | 23-27 | 39.37 (10.0) | 48.82 (12.4) | 11.81 (3.0) | 60.63 (15.4) |
| 5 | 5 | V2T3 | 24-27 | 36.15 (9.2) | 52.31 (13.2) | 11.54 (3.0) | 63.85 (16.2) |
| 6 | 6 | V1T1 | 26-27 | 32.92 (8.8) | 52.80 (14.2) | 14.29 (3.8) | 67.09 (18.0) |
| 6 | 6 | V1T2 | 26-27 | 34.78 (9.3) | 48.45 (13.0) | 16.77 (4.5) | 65.22 (17.5) |
| 6 | 6 | V1T3 | 26-27 | 31.88 (8.5) | 53.13 (14.2) | 15.00 (4.0) | 68.13 (18.2) |
| 6 | 6 | V2T1 | 27 | 31.48 (8.5) | 56.17 (15.2) | 12.35 (3.3) | 68.52 (18.5) |
| 6 | 6 | V2T2 | 27 | 33.33 (9.0) | 51.85 (14.0) | 14.81 (4.0) | 66.66 (18.0) |
| 6 | 6 | V2T3 | 27 | 30.43 (8.2) | 56.52 (15.3) | 13.04 (3.5) | 69.56 (18.8) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Linked Item Evaluations with Lower Complexity | Mean % (N) of Linked Item Evaluations with Same Complexity | Mean % (N) of Linked Item Evaluations with Higher Complexity | Mean % (N) of Linked Item Evaluations with Same or Higher Complexity |
|---|---|---|---|---|---|---|---|
| 7 | 6 | V1T1 | 27 | 40.74 (11.0) | 41.98 (11.3) | 17.28 (4.7) | 59.26 (16.0) |
| 7 | 6 | V1T2 | 27 | 37.04 (10.0) | 38.89 (10.5) | 24.07 (6.5) | 62.96 (17.0) |
| 7 | 6 | V1T3 | 27 | 32.10 (8.7) | 40.12 (10.8) | 27.78 (7.5) | 67.90 (18.3) |
| 7 | 6 | V2T1 | 27 | 43.83 (11.8) | 40.74 (11.0) | 15.43 (4.2) | 56.17 (15.2) |
| 7 | 6 | V2T2 | 27 | 40.12 (10.8) | 37.65 (10.2) | 22.22 (6.0) | 59.87 (16.2) |
| 7 | 6 | V2T3 | 27 | 35.19 (9.5) | 38.89 (10.5) | 25.93 (7.0) | 64.82 (17.5) |
| 8 | 6 | V1T1 | 27 | 33.33 (9.0) | 42.59 (11.5) | 24.07 (6.5) | 66.66 (18.0) |
| 8 | 6 | V1T2 | 27 | 30.86 (8.3) | 45.06 (12.2) | 24.07 (6.5) | 69.13 (18.7) |
| 8 | 6 | V1T3 | 26-27 | 30.00 (8.0) | 45.63 (12.2) | 24.38 (6.5) | 70.01 (18.7) |
| 8 | 6 | V2T1 | 27 | 36.42 (9.8) | 40.12 (10.8) | 23.46 (6.4) | 63.58 (17.2) |
| 8 | 6 | V2T2 | 27 | 33.95 (9.2) | 42.59 (11.4) | 23.46 (6.4) | 66.05 (17.8) |
| 8 | 6 | V2T3 | 26-27 | 33.13 (8.8) | 43.13 (11.5) | 23.75 (6.3) | 66.88 (17.8) |
| 11 | 5 | V1T1 | 26-27 | 63.43 (17.0) | 30.60 (8.2) | 5.97 (1.6) | 36.57 (9.8) |
| 11 | 5 | V1T2 | 26-27 | 62.69 (16.8) | 31.34 (8.4) | 5.97 (1.6) | 37.31 (10.0) |
| 11 | 5 | V1T3 | 26-27 | 61.94 (16.6) | 31.34 (8.4) | 6.72 (1.8) | 38.06 (10.2) |
| 11 | 5 | V2T1 | 27 | 65.93 (17.8) | 26.67 (7.2) | 7.41 (2.0) | 34.08 (9.2) |
| 11 | 5 | V2T2 | 27 | 65.19 (17.6) | 27.41 (7.4) | 7.41 (2.0) | 34.82 (9.4) |
| 11 | 5 | V2T3 | 27 | 64.44 (17.4) | 27.41 (7.4) | 8.15 (2.2) | 35.56 (9.6) |

Note: N is an abbreviation for Number.

[a] A range of values denotes the number of items with a valid CCC (i.e., a CCC was identified or the CCC was recorded accurately) assigned by panelists.

## *Criterion 4: Content Differentiation*

This criterion focuses on whether the content increases in depth, breadth, and complexity at higher grade levels for CAA items. Tables 58 and 59 show consensus ratings among panelists across the categories using the following rating scheme: clear, partial, limited, or no differentiation that all ratings of differentiation (clear, partial, or limited) are acceptable across grade levels for each category, but that the content should exhibit some differentiation across grade levels. The content being addressed at each grade level should increase in depth and breadth, building and adding on the skills and knowledge learned in a prior grade. A standard should not be static from one grade to the next.

Across grades in mathematics and ELA, panelists found clear or partial item differentiation in all dimensions. Except for ELA grades three through five, panelists rated items as not being identical across grade levels. For ELA grades three through five, panelists stated that in their opinion, the majority of items across grades focused on the same type of question, with few questions adding depth or breadth.

*Table 58. Consensus CAA Content Differentiation Across Grades – Mathematics*

| Grades Reviewed | Dimension | Rating | Rating Support (Consensus Panelist Comments) |
|---|---|---|---|
| 3 – 5 | Broader | Partial | There is clear differentiation from third grade to fourth grade but only partial differentiation from fourth grade to fifth grade. They introduce a number of new concepts in fifth grade. |
| 3 – 5 | Deeper | Partial | There is clear differentiation from third grade to fourth grade but only partial differentiation from fourth grade to fifth grade. Ten percent of the questions are not aligned to any CCC. In addition, due to the number of new concepts introduced in fifth grade, there is not a clear differentiation of depth in this grade level. |
| 3 – 5 | Prerequisite | Clear | There is clear differentiation in this area. The skills in third grade are necessary for fourth grade and fourth grade skills are necessary in fifth grade. They build on the knowledge of basic operations, place value and fractions. |
| 3 – 5 | New | Partial | Most of the concepts in fourth grade are broadening and/or deepening of third grade concepts. There are few new skills in fourth grade. However, there are a number of new skills that are taught in fifth grade including measurement conversion and coordinate graphing. |
| 3 – 5 | Identical | No [a] | None of the items are duplicating any items from the other two grades. |
| 6 – 8 | Broader | Clear | In each of the different levels the amount of content is increased. There is more required of the students in the different areas. An example of this is in geometry where it goes from 2-dimensional to 3-dimensional shapes in finding area to volume. |
| 6 – 8 | Deeper | Clear | In each of the different levels the complexity is increased and the students are asked to process/synthesize more information. In sixth grade students are asked to compile data and in seventh and eighth grade students are making inferences based on the data. |
| 6 – 8 | Prerequisite | Clear | The content builds upon itself year to year. In sixth grade the students are identifying ratios and then it leads into proportions and proportional relationships in seventh and eighth grade. |
| 6 – 8 | New | Clear | Seventh grade introduces circles and eighth grade introduces functions. |
| 6 – 8 | Identical | No [a] | There were no identical items from grade to grade. |

[a] For the Identical dimension, the rating scale is “yes” or “no.”

*Table 59. Consensus CAA Content Differentiation Across Grades – ELA*

| Grades Reviewed | Dimension | Rating | Rating Support (Consensus Panelist Comments) |
|---|---|---|---|
| 3 – 5 | Broader | Partial | Some of the items were the same across grade levels. |
| 3 – 5 | Deeper | Partial | The majority of the items addressed simple concepts such as "identify the main idea", "who is the main character?" Fifth grade addressed deeper concepts such as identifying emotions and using graphic organizers. |
| 3 – 5 | Prerequisite | Partial | When different concepts were introduced (compare/contrast), the skill had not been introduced in earlier grades. There was a similarity with some items that continued to address the same skills. |
| 3 – 5 | New | Partial | New skills did not appear until fifth grade. Third grade and fourth grade items seemed to blend together. |
| 3 – 5 | Identical | Yes [a] | The majority of the items focused on the same type of questions. Only a limited number of broader and deeper questions were added. |
| 6 – 8 | Broader | Clear | [Panelists] Content experts state that, for example, while sixth grade learners had a lower level of textual-based evidence cognitive demands, seventh to eighth grade learners had to demonstrate higher textual-based evidence cognitive demands. |
| 6 – 8 | Deeper | Clear | [Panelists] More CAA ELA grade seven and eight questions required learners to demonstrate understanding of non-examples of target skills/knowledge, marshal higher DOK levels to articulate an author's organizational structure, and identify similarities/differences between more multiple, conflicting texts. (e.g., in Claim/Evidence questions, learners had to progress in demonstrating higher-level skills from locating a claim, to locating to evidence, and finally to considering possibilities for evidence.) |
| 6 – 8 | Prerequisite | Clear | [Panelists] From the CAA ELA grade six through eight exams, Claim/Evidence questions "spiral", requiring learners to build upon prerequisite skills from prior grade levels, leading learners to progress in demonstrating higher-level skills from locating a claim, to locating to evidence, and finally to considering possibilities for evidence. |
| 6 – 8 | New | No | NA |
| 6 – 8 | Identical | No [a] | NA |

[a] For the Identical dimension, the rating scale is “yes” or “no.”

## *Criterion 5: Performance Accuracy*

This criterion is intended to evaluate the degree of accessibility of the CAA for all student groups who take it. Reduced access to the items would decrease accurate measurement of students' skills. Panelists rated items on whether accommodations or supports can be provided for different types of students without substantially altering the target content.

Tables 60 and 61 display the mean percentage of items rated as accessible to all students. To meet the criterion, at least 90 percent of the items should be rated as accessible for the whole assessment to be considered accessible. The ratings for all grades and subjects, except for three grades in mathematics, indicate that panelists found more than 90 percent of the items to be accessible to particular disability groups. In mathematics, panelists rated the accessibility of items in the CAA for grades three, four, and eleven at 67 percent, 85 percent, and 60 percent, respectively, to particular disability groups.

The second rating required panelists to evaluate whether items could be modified or supports could be offered without altering the meaning or purpose of the item. Panelists noted that they were not allowed to "modify" the assessments, but could provide supports as indicated by the test administration guidance. A common approach to administering an alternate assessment is for teachers to offer accommodations or supports (i.e., assistive technology; scaffolding) as appropriate for a given student, based on student IEPs.

*Table 60. Mean Percentage of CAA Item Evaluations Rated as Accessible to Different Disability Groups Across Panelists – Mathematics*

| Grade | N Panelists | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|
| 3 | 5 | 48-50 | 67.21 (33.2) | 32.79 (16.2) |
| 4 | 5 | 50 | 84.80 (42.4) | 15.20 (7.6) |
| 5 | 5 | 49-50 | 95.18 (47.4) | 4.82 (2.4) |
| 6 | 6 | 50 | 96.67 (48.3) | 3.33 (1.7) |
| 7 | 6 | 50 | 95.33 (47.7) | 4.67 (2.3) |
| 8 | 6 | 50 | 95.33 (47.7) | 4.67 (2.3) |
| 11 | 5 | 50 | 60.00 (30.0) | 40.00 (20.0) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.
[b] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table 61. Mean Percentage of CAA Item Evaluations Rated as Accessible to Different Disability Groups Across Panelists – ELA*

| Grade | N Panelists | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|
| 3 | 5 | 49-50 | 99.20 (49.4) | 0.80 (0.4) |
| 4 | 5 | 50 | 99.60 (49.8) | 0.40 (0.2) |
| 5 | 5 | 50 | 100.00 (50.0) | 0.00 (0.0) |
| 6 | 6 | 50 | 99.67 (49.8) | 0.33 (0.2) |
| 7 | 6 | 50 | 100.00 (50.0) | 0.00 (0.0) |
| 8 | 6 | 49-50 | 100.00 (49.8) | 0.00 (0.0) |
| 11 | 5 | 50 | 100.00 (50.0) | 0.00 (0.0) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.
[b] Values in parentheses denote the mean number of items rated across panelists for each category.

Tables 62 and 63 include the mean percentage of items panelists found amenable to these types of changes. Panelists found the majority of items could be altered appropriately for individual students.

*Table 62. Mean Percentage of CAA Item Evaluations Rated as Amenable to Accommodations or Supports Across Panelists – Mathematics*

| Grade | N Panelists | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|
| 3 | 5 | 48-50 | 96.75 (47.6) | 3.25 (1.6) |
| 4 | 5 | 50 | 98.80 (49.4) | 1.20 (0.6) |
| 5 | 5 | 49-50 | 97.19 (48.4) | 2.81 (1.4) |
| 6 | 6 | 50 | 99.67 (49.8) | 0.33 (0.2) |
| 7 | 6 | 50 | 100.00 (50.0) | 0.00 (0.0) |
| 8 | 6 | 50 | 100.00 (50.0) | 0.00 (0.0) |
| 11 | 5 | 50 | 90.80 (45.4) | 9.20 (4.6) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.
[b] Values in parentheses denote the mean number of items rated across panelists for each category.

To further evaluate the CAA on accessibility and accommodations, panelists provided a consensus rating on four questions across nine disability groups. This evaluation allowed panelists to evaluate whether students with certain disabilities may have difficulty accessing the CAA or if accommodations are difficult to provide. The ratings in Tables 60 through 63 above focused, in general, across all disabilities on whether the CAA is accessible and amenable to accommodations. Table 64 and 65 show that panelists believed there are sufficient provisions (e.g., use of alternate text, administrator-presented items) in the assessment to capture responses for students

without clear, intentional communication in ELA grades three through five and six through eight, but not ELA grade eleven or any of the mathematics grades. However, panelists felt that accommodations, modifications, and supports were defined sufficiently to maintain standardized administration for all grades and subjects.

*Table 63. Mean Percentage of CAA Item Evaluations Rated as Amenable to Accommodations or Supports Across Panelists – ELA*

| Grade | N Panelists | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|
| 3 | 5 | 49-50 | 99.60 (49.2) | 0.40 (0.2) |
| 4 | 5 | 50 | 99.60 (49.8) | 0.40 (0.2) |
| 5 | 5 | 50 | 100.00 (50.0) | 0.00 (0.0) |
| 6 | 6 | 49-50 | 100.00 (49.8) | 0.00 (0.0) |
| 7 | 6 | 50 | 100.00 (50.0) | 0.00 (0.0) |
| 8 | 6 | 49-50 | 100.00 (49.8) | 0.00 (0.0) |
| 11 | 5 | 50 | 100.00 (50.0) | 0.00 (0.0) |

Note: N is an abbreviation for Number.
[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.
[b] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table 64. Whole Test Barriers to Demonstrating Student Knowledge – Question 1: Are there provisions in the assessment to capture responses for students without clear, intentional communication (even at non-symbolic level)?*

| Yes | No | Comments |
|---|---|---|
| ELA 3–5 | ELA 11 | If the student doesn't pass the initial screening due to lack of communication ability, then the test is ended. There are no ways to provide students without clear communication access to the assessment items. |
| ELA 6–8 | Math 3–5 | Would have to assume the child's answer, not knowing what response is. |
| NA | Math 6–8 | It is difficult to assess students who cannot communicate intentionally, and these items do not provide provisions for these students. |
| NA | Math 11 | The only option for these students is that the evaluator has the right to stop the test --- however it does not measure student's knowledge. It was not clear to our panel that there were obvious provisions for these types of students. |

*Table 65. Whole Test Barriers to Demonstrating Student Knowledge – Question 2: Are accommodations, modifications, and supports defined sufficiently to maintain standardized administration?*

| Yes | No | Comments |
|---|---|---|
| ELA 3–5 | NA | Accommodations, modifications, and supports must be explicitly stated in a learner's Individualized Education Plan (IEP) as well as in the Test Operations Management System. |
| ELA 6–8 | NA | Pretty clear as to what is an allowed accommodation and what is not. |
| ELA 11 | NA | Response of Yes for 2017, assumes allowable use of such things as manipulatives, directions being read aloud, as in place during 2017 administration. The 2016 guidance for IEPs had different allowable modifications and accommodations, which have since been revised. |
| Math 6–8 | NA | The Directions for Administration (DFA) provides alternative text for students with visual impairments, but does not provide much guidance on implementing the students' individual accommodations. Accommodations and modifications are largely entered by the teacher in the IEP, not in the DFA. |
| Math 11 | NA | The DFA's were descriptive and clear for those administering the test. |

Tables 66 through 69 indicate that overall, panelists felt that the CAA is accessible to many different disability groups. The main issue panelists did find was generally with students with hearing/visual impairments. Panelists stated that students who are deaf, deaf/ blind, or communicate nonverbally with pictures would have the greatest challenge in accessing the assessment.

*Table 66. Whole Test Barriers to Demonstrating Student Knowledge for Certain Disability Groups – Question 3*

| Does the CAA contain provisions for students with these characteristics? | Panel Groups Responding 'No' | Comments |
|---|---|---|
| Visually Impaired/Legally Blind | Math 3–5, Math 6–8, ELA 3–5 | • DFAs alternate text are much clearer and better. Still have the problem, if the student cannot see the graphic stimuli or answer choices, cannot solve the problem (need tangibles).<br>• More items in grade eight with colors in graphs and videos.<br>• There are too many visuals that students with visual impairments cannot access. These visuals are critical for students who are not visually impaired. |
| Hearing Impaired | Math 3–5, Math 6–8, ELA 3–5 | • American Sign Language (ASL) interpreter required to translate DFA.<br>• Videos (group was not sure if there are Closed Captioning (CC); even with CC, reading ability is a concern), and there is an assumption sign language is used.<br>• For students who are hearing impaired, this test would be difficult as there are videos and items that are read aloud. |
| Deaf/Blind | Math 3–5, Math 6–8, Math 11, ELA 3–5 | • Test does not allow for known modifications and/or accommodations for students with hearing/visual impairments. |
| Nonverbal – Printed Words | Math 3–5 | • Rated "no" because almost all students will require accommodations; children on the autism spectrum may be able to respond. |
| Nonverbal – Pictures | Math 3–5 | • Need assistive device with pictures to indicate response. "Nonverbal-manual signs" interpreted as "non-reader, simple y/n signs known": cannot access as is, they require simplified test directions, quiet environment, masking. |
| Nonverbal – Manual Signs | Math 3–5 | • NA |
| Nonverbal – Eye Gaze | Math 3–5, Math 6–8, Math 11 | • Limited screen size precludes student response being able to be correctly interpreted. Panelists think by and large all types of students need accommodations to access the test and demonstrate what they know.<br>• Printed materials need to be arranged differently for clear eye gaze. |
| Verbal but no use of hands | Math 3–5 | • NA |
| Communicates with objects or yes/no | Math 3–5, Math 6–8 | • NA |

*Table 67. Whole Test Barriers to Demonstrating Student Knowledge for Certain Disability Groups – Question 4*

| Student can do the CAA items as designed with flexibility built into items? | Panel Groups Responding 'No' | Comments |
|---|---|---|
| Visually Impaired/Legally Blind | Math 3–5, Math 6–8, ELA 3–5 | • Interpreting flexibility as "embedded" options. DFAs are poorly done or incomplete. Alternative text does not provide enough information to solve the problem if the student cannot see the graphic stimuli or answer choices.<br>• More items in grade eight with colors in graphs and videos.<br>• Even though the DFA has descriptions for some of the pictures, not being able to access all images is a disadvantage for those students who are blind. |
| Hearing Impaired | Math 3–5, Math 6–8, ELA 3–5 | • ASL interpreter required to translate DFA.<br>• Videos (group was not sure if there was CC, even with CC, reading ability is a concern), and there is an assumption sign language is used. |
| Deaf/Blind | Math 3–5, Math 6–8, Math 11, ELA 3–5 | • Test does not allow for known modifications and/or accommodations for students with hearing/visual impairments. |
| Nonverbal – Printed Words | Math 3–5 | • NA |
| Nonverbal – Pictures | Math 3–5 | • Need assistive device with pictures to indicate response. |
| Nonverbal – Manual Signs | Math 3–5 | • NA |
| Nonverbal – Eye Gaze | Math 3–5, Math 6–8 | • Would not know where the student is gazing on the screen. Would need to print out the test. |
| Verbal but no use of hands | Math 3–5 | • NA |
| Communicates with objects or yes/no | Math 3–5, Math 6–8 | • The complexity of the responses increases in grade eight. Cannot indicate yes/no and still infer the same meaning. |

*Table 68. Whole Test Barriers to Demonstrating Student Knowledge for Certain Disability Groups – Question 5*

| Student can do the CAA items with accommodations (no change to meaning)? | Panel Groups Responding 'No' | Comments |
|---|---|---|
| Visually Impaired/Legally Blind | ELA 3–5 | • There are too many visuals and too much that needs to be read aloud. If legally blind, hearing impaired and students with hearing/visual impairments cannot see or hear the questions/items then the questions/items will be completely different. Visually impaired students could be successful with the use of magnification which is embedded in the test. |
| Hearing Impaired | ELA 3–5 | • NA |
| Deaf/Blind | Math 3–5, Math 11, ELA 3–5 | • No way to access test for deaf/blind at this grade level<br>• Test does not allow for known modifications and/or accommodations for students with hearing/visual impairments. |
| Nonverbal – Printed Words | NA | • NA |
| Nonverbal – Pictures | NA | • NA |
| Nonverbal – Manual Signs | NA | • NA |
| Nonverbal – Eye Gaze | Math 3–5 | • NA |
| Verbal but no use of hands | NA | • NA |
| Communicates with objects or yes/no | Math 3–5 | • NA |

*Table 69. Whole Test Barriers to Demonstrating Student Knowledge for Certain Disability Groups – Question 6*

| Student can do the CAA items with modifications/ supports (may change meaning)? | Panel Groups Responding 'No' | Comments |
|---|---|---|
| Visually Impaired/Legally Blind | NA | • NA |
| Hearing Impaired | NA | • NA |
| Deaf/Blind | Math 3–5 | • No way to access test for deaf/blind at this grade level.<br>• Any item can be modified; however, it will change the validity and results of test.<br>• Changes to meet the needs of the students would result in a different test. |
| Nonverbal – Printed Words | NA | • NA |
| Nonverbal – Pictures | NA | • NA |
| Nonverbal – Manual Signs | NA | • NA |
| Nonverbal – Eye Gaze | NA | • NA |
| Verbal but no use of hands | NA | • NA |
| Communicates with objects or yes/no | NA | • NA |

# References


Educational Testing Service, (2017). *California Assessment of Student Performance and Progress California Alternate Assessment Technical Report 2015–16 Administration*. Retrieved from: https://www.cde.ca.gov/ta/tg/ca/documents/caa2016techrpt.pdf

Flowers, C., Wakeman, S., Browder, D., & Karvonen, M. (2007). *Links for academic learning: An alignment protocol for alternate assessments based on alternate achievement standards.* Charlotte, NC: University of North Carolina at Charlotte. Retrieved from: http://www.naacpartners.org/LAL/documents/NAAC_AlignmentManualVer8_3.pdf

National Center and State Collaborative. (2014a). CCSS, Prioritized Mathematics CCCs, and Essential Understandings. Retrieved July, 2017, from https://osse.dc.gov/sites/default/files/dc/sites/osse/publication/attachments/NCSC%20Mathematics%20CCSS%20CCCs%20and%20EUs.pdf

National Center and State Collaborative. (2014b). CCSS, Prioritized English Language Arts CCCs, and Essential Understandings: Reading. Retrieved July, 2017, from https://osse.dc.gov/sites/default/files/dc/sites/osse/publication/attachments/NCSC%20Reading%20CCSS%20CCCs%20and%20EUs.pdf

National Center and State Collaborative. (2014c). CCSS, Prioritized English Language Arts CCCs, and Essential Understandings: Writing. Retrieved July, 2017, from https://osse.dc.gov/sites/default/files/dc/sites/osse/publication/attachments/NCSC%20Writing%20CCSS%20CCCs%20and%20EUs.pdf

Webb, N. L. (1997). *Criteria for alignment of expectations and assessments in mathematics and mathematics education (Research Monograph No. 6).* Washington, DC: Council of Chief State Schools Officers.

Webb, N. L. (1999). *Alignment of mathematics and mathematics standards and assessments in four states (Research Monograph 18).* Madison, WI: National Institute for Mathematics Education and Council of Chief State School Officers. (ERIC Document Reproduction Service No. ED440852)

Webb, N. L. (2005). *Webb alignment tool: Training manual*. Madison, WI: Wisconsin Center for Education Research. Available: http://wat.wceruw.org/TrainingManual.

# Glossary of Acronyms

| Acronym | Gloss |
|---|---|
| ASL | American Sign Language |
| CAA | California Alternate Assessment |
| CAASPP | California Assessment of Student Performance and Progress |
| CC | Closed captioning |
| CCC | Core Content Connector |
| CCSS | Common Core State Standards |
| CDE | California Department of Education |
| DFA | Directions for administration |
| DOK | Depth of knowledge |
| ELA | English language arts/literacy |
| ETS | Educational Testing Service |
| HumRRO | Human Resources Research Organization |
| IEP | Individualized Education Plan |
| LAL | Links for Academic Learning |
| NCSC | National Center and State Collaborative |
| OIB | Ordered item booklet |

# Appendix A. California Alternate Assessment Panelist Instructions

| # | Rating Item | Documents Needed | File Format |
|---|---|---|---|
| 1 | CCSS Standards DOK | (1) Item1_DOK_*subject*_gr*x* – *x*<br>(2) Panelist Instructions | Excel® spreadsheet<br>Print copy |
| 2 | Core Content Connector (CCC) DOK | (1) Item2_DOK_*subject*_gr*x* – *x*<br>(2) Panelist Instructions | Excel® spreadsheet<br>Print copy |
| 3 | CCC Review | (1) Item3_CCC_*subject*_gr*x* – *x*<br>(2) Panelist Instructions | Excel® spreadsheet<br>Print copy |
| 4 | CCC Content Differentiation **Math 3–5, 6–8; ELA 3–5, 6–8 ONLY** | (1) CCCs<br>(2) Item4_*subject*_gr*x* – *x* | Print copy<br>Excel® spreadsheet |
| 5 | CAA Item Review | (1) CAA OIB and DFA<br>(2) CAA_*subject*_gr*x*_item_Rating_Form<br>(3) Panelist Instructions<br>(4) CCCs | Print copy<br>Excel® spreadsheet<br>Print copy<br>Print copy |
| 6 | Item Content Differentiation **Math 3–5, 6–8; ELA 3–5, 6–8 ONLY** | (1) CAA OIB and DFA<br>(2) Item6_*subject*_gr*x* – *x* | Print copy<br>Excel® spreadsheet |
| 7 | Whole Test | (1) CAA OIB and DFA<br>(2) Item7_WholeTestCon_*subject*_gr*x* – *x* | Print copy<br>Excel® spreadsheet |

**Rating Form Excel® files:**

Access HumRRO item rating forms:

a. Locate folder on desktop, double click to open.
b. Open file specified by facilitator (example – Item4_*subject*_gr*x* – *x*).
c. File, Save As, same file name with an underscore and your 3 initial extension (e.g., Item4_*subject*_gr*x* – *x*_***eas***).
d. Autosave will be set to every "1" minute; however, please save often as this doesn't work all the time.
e. Repeat for each rating form.

## 1 Rate CCSS DOK (Consensus)

(1) Use CCSS (in Item1_DOK_*subject*_gr*x*-*x*.xls) and Depth of Knowledge

(2) Calibration: Rate 5 CCSS independently and discuss as group to reach consensus.

*Note: if unable to reach consensus, majority rules, then tie break is higher DOK rating.*

(3) The facilitator may repeat before you start entering your independent ratings.

## 2 Rate CCC DOK (Consensus)

(1) Use CCCs (in Item2_DOK_*subject*_gr*x*-*x*.xls) and Depth of Knowledge

(2) Calibration: Rate 5 CCCs independently and discuss as group to reach consensus.

*Note: if unable to reach consensus, majority rules, then tie break is higher DOK rating.*

(3) Rating category

a. Content Centrality: How well do you think the content in the CCC matches the CCSS?

0 = content completely different;

1 = content weakly linked;

2 = content clearly linked

(4) The facilitator may repeat before you start entering your independent ratings.

## 3 CCC Review

(1) Open Item3_CCC_*subject*_gr*x* – *x*.xls and **save with initial extension**.

(2) Review rating categories (codes on following pages).

a. Column G – Performance Centrality: Are students called upon to perform similarly between the CCC and CCSS? For example, do both standards require the student to select, identify, compare, analyze, or evaluate? If there are differences, then rate accordingly.

b. Column H – Age Appropriateness: Is the content and context of the CCC indicative of age/grade level content? For example, does the CCC address content in a context not appropriate to the student (i.e., Are HS students presented content using a popular television character suitable for kindergarten students)?

c. Column I – Notes/Comments: If you enter a low rating in Columns G and H, please explain your reasoning.

(3) Calibration: Rate 5 CCCs independently and discuss as group. This is NOT consensus and is only to ensure everyone is comfortable with the ratings.

(4) The facilitator may repeat before you start entering your independent ratings.

## 4 Content Differentiation for CCC – Math & ELA Grades 3–5 & 6–8 ONLY

This criterion focuses on whether the content expectations (CCCs) change appropriately between grade levels. NOTE: THIS IS ONLY FOR MATH AND ELA GRADES 3–5 & 6–8

(1) Open Item4_*subject*_gr*x* – *x*.xls and **save with initial extension**.

(2) Review rating categories (codes on following pages).

a. Use CCCs.

b. Review CCCs for adjacent grades.

c. Always specify an example(s) when explaining rating.

## 5 CAA Item Review

(1) Open CAA_*subject*_gr*x*_item_Rating_Form.xls and **save with initial extension**.

(2) Review rating categories (codes on following pages – column letter in parens = ELA columns)

a. Column E (G) – Primary CCC Code: Enter the CCC that best matches the content of the CAA item.

b. Column F (H) – Secondary CCC Code: If a second CCC matches the content of the CAA item as well as the CCC entered in Column E (G), then provide a second CCC.

c. Column G (I) – Quality of Link: Does the content in the item match with content indicated in CCC?

0 = No Link (i.e., none of the item content is found in the CCC)

1 = Partially Linked (i.e., some of the item content is not found in the CCC)

2 = Fully Linked (i.e., all of the item content is found in the CCC)

d. Column H (J) – Explanation: If you rate other than “Fully Linked” in Column E (G) explain ***what content*** is missing from CCC.

e. Column I (K) – DOK: Enter the DOK value that best represents the cognitive complexity of the item

*Note: cognitive complexity ≠ cognitive difficulty*

f. Column J (L) – Performance Centrality: Do the items allow students to demonstrate content at a similar performance level as the CCC? Performance types include: select, identify, compare, analyze, or evaluate.

g. Column K (M) – Age Appropriateness: Is the content and context of the content age/grade level appropriate?

h. Barriers to Demonstrating Knowledge. This has two ratings, accessibility and modification.

   Column L (N) – Accessibility (This is outside of communication abilities; such as students with visual impairments, or inability to follow instructions, or need of assistive technology):

   1. Yes, all CAA eligible students can demonstrate the knowledge required by this item.
   2. No, some CAA eligible students cannot demonstrate the knowledge required by this item.

   Column M (O) – Modification (This is asking if there are supports teachers can provide, such as assistive technology or additional prompts of some type (ask for suggestions from the special ed teachers) as appropriate for a given student:

   1. Yes, the item could be modified to be more accessible for some students without changing meaning.
   2. No, modifying the item further would change the meaning of difficulty.

i. Column N (P) – Notes/Comments: If you enter a low rating in Columns J (L) – M (O), please explain your reasoning.

(3) Calibration: Rate 2 items independently and discuss as group. This is NOT consensus and is only to ensure everyone is comfortable with the ratings.

(4) The facilitator may repeat before you start entering your independent ratings.

## 6 Content Differentiation for Items – Math & ELA Grades 3–5 & 6–8 ONLY

This criterion focuses on whether the content presented in items change appropriately between grades.

(1) Open Item6_*subject*_gr*x* – *x*.xls and **save with initial extension**.

(2) Review rating categories (codes on following pages).

a. Use all items.

b. Rate based on item levels for items on the test.

c. Explain ratings for each category by citing specific example(s).

## 7 Rate 'Whole Test' (Consensus) by grade level assessment form

The purpose of this step is to determine if barriers exist for some students to demonstrate learning per test form, as a consensus discussion.

(1) Open Item7_WholeTestCon_*subject*_gr*x* – *x*.xls for reference only. The facilitator will record the group's discussion.

(2) Focus on across the assessment form in general, but use item examples for evidence in support of rating.

(3) Use CAA DFA and Items.

### Training Support Materials

Steps 1, 2, and 5: DOK Definitions

| Level | DOK Description |
|---|---|
| **0** | **None**: No content clearly measured; too vague |
| **1** | **Attention**: Requires students to display ability to acknowledge, reply, and respond to text or related subject features.<br>Examples: Attends to pictures/symbols pertinent to a story or attends while teacher reads subject related text.<br>(touch, look, vocalize, respond, attend) |
| **2** | **Memorize/recall**: Requires the ability to recite or recall facts or information. It involves the ability to distinguish between simple text-based and one-step procedures.<br>Examples: Indicates understanding of new words or recalls basic ideas in passages via speech, writing, or signs.<br>(list, describe (facts), identify, state, define, label, recognize, record, match, recall, relate) |
| **3** | **Performance**: Requires students to use recalled facts or information for simple items.<br>Example: Retell information taken from printed materials.<br>(perform, demonstrate, follow, count, locate, read) |
| **4** | **Comprehension**: Requires processing beyond recall and observation and may require both understanding and subsequent processing of text. It involves ordering, classifying, estimating text or numbers as well as identifying patterns, main points, or two-step procedures.<br>Example: Draw a line through parts of passage with errors (capitalization or grammar).<br>(explain, conclude, group/categorize, restate, review, translate, describe (concepts), paraphrase, infer, summarize, illustrate) |

| Level | DOK Description |
|---|---|
| 5 | **Application**: Show ability to go beyond text; to reason, plan, or use of evidence to connect ideas. Students will use text, data, or observations to draw conclusions or solve non-routine problems.<br><br>Example: Which of the following conclusions is best supported by information from the passage?<br><br>(compute, organize, collect, apply, classify, construct, solve, use, order, develop, generate, interact with text, implement) |
| 6 | **Analysis, Synthesis, Evaluation**: Requires extended higher order processing. It typically requires extended time to complete an item, but the time is not spent on repetitive items. It involves taking information and applying this information to a new item; which may require generating a hypothesis, performing complex analyses, or making connections among different texts.<br><br>Example: You will become a storyteller and will research and write the story of a Southerner who has moved to the North after the Civil War.<br><br>(pattern, analyze, compare, contrast, compose, predict, extend, plan, judge, evaluate, interpret, cause/effect, investigate, examine, distinguish, differentiate, generate) |

Step 3 and 5 CCC and Item Reviews

| Category | Code | Description |
|---|---|---|
| Content Centrality | 1 - Not aligned<br>2 - Partially aligned<br>3 - Fully aligned | CCC/Item does not match standard content at all<br>CCC/Item is not fully aligned to the standard content<br>CCC/Item is a good match to standard content |
| Age Appropriateness | I - Inappropriate<br>N - Neutral<br>A - Adapted | Content is off-grade level<br>Content is not age-bound, it is appropriate at any age or grade<br>Adapted from, or linked to, age/grade-level content |
| Performance Centrality | N - None<br>S - Some<br>A - All | CCC/Item has no similar performance types<br>CCC/Item has some similar performance types<br>CCC/Item has the same performance types |
| Accessibility | Y - Yes<br>N - No | Some students cannot access content (explain who & why) |
| Modifications or Supports | Y - Yes<br>N - No | Modifications and supports can be provided for this Item.<br>This item is not amenable to supports or modifications without changing meaning or difficulty. |

Step 4 and 6 Content Differentiation (across grades) for CCCs and Items

| Category | Description |
|---|---|
| Broader | Higher-grade CCCs reflect broader application of target skill/knowledge.<br><br>Higher grades reflect broader application of target skill/knowledge (CCC). |
| Deeper | Higher-grade CCCs reflect deeper mastery of the target skill/knowledge.<br><br>Higher grades reflect deeper mastery of the target skill/knowledge (CCC). |
| Prerequisite | Lower-grade CCCs target a prerequisite skill for mastery of the higher grade CCC.<br><br>Lower grades target a prerequisite skill for mastery of the CCC. |
| New | The higher-grade has a new skill or knowledge unrelated to skill/knowledge covered at prior grades.<br><br>The higher grade has a new skill or knowledge that combined with the lower items allows for the complete CCC. |
| Identical | Higher-grade CCCs appear identical to one of the lower-grade CCCs.<br><br>Higher grades appear identical to one of the lower items in what a student is being asked to know/do. |

# Appendix B. Core Content Connector to Common Core State Standards Crosswalk

*Table B.1. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Three Mathematics*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Operations & Algebraic Thinking | **3.OA.A.1** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.* | **3.OA.D.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. | 2 |
| Operations & Algebraic Thinking | **3.OA.D.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. | **3.NO.2e1** Solve or solve and check one or two-step word problems requiring addition, subtraction or multiplication with answers up to 100. | 2 |
| Operations & Algebraic Thinking | **3.OA.D.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.* | **3.PRF.2d1** Identify multiplication patterns in a real world setting. | 1 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Number & Operations in Base Ten | **3.NBT.A.1** Use place value understanding to round whole numbers to the nearest 10 or 100. | **3.NO.1j3** Use place value to round to the nearest 10 or 100. | 2 |
| Number & Operations in Base Ten | **3.NBT.A.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. | **3.NO.2c1** Solve multi-step addition and subtraction problems up to 100. | 2 |
| Number & Operations—Fractions | **3.NF.A.1** Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a/b* as the quantity formed by a parts of size 1/*b*. | **3.NO.1l3** Identify the fraction that matches the representation (rectangles and circles; halves, fourths, and thirds, eighths). | 2 |
| Number & Operations—Fractions | **3.NF.A.3d** Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. | **3.SE.1g1** Use =, <, or > to compare two fractions with the same numerator or denominator. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Measurement & Data | **3.MD.B.3** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.* | **3.DPS.1g1** Collect data, organize into picture or bar graph. | 1 |
| Measurement & Data | **3.MD.C.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). | **3.ME.1d2** Measure area of rectangular figures by counting squares. | 2 |
| Geometry | **3.G.A.2** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.* | **3.GM.1i1** Partition rectangles into equal parts with equal area. | 2 |

*Table B.2. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Four Mathematics*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Operations & Algebraic Thinking | **4.OA.A.1** Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. | **4.NO.2d7** Determine how many objects go into each group when given the total number of objects and groups where the number in each group or number of groups is not > 10. | 2 |
| Operations & Algebraic Thinking | **4.OA.A.2** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. | **4.PRF.1e3** Solve multiplicative comparisons with an unknown using up to 2-digit numbers with information presented in a graph or word problem (e.g., an orange hat cost $3. A purple hat cost 2 times as much. How much does the purple hat cost? [3 x 2 = p]). | 2 |
| Operations & Algebraic Thinking | **4.OA.A.3** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. | **4.NO.2e2** Solve or solve and check one or two step word problems requiring addition, subtraction, or multiplication with answers up to 100. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Number & Operations in Base Ten | **4.NBT.A.3** Use place value understanding to round multi-digit whole numbers to any place. | **4.NO.1j5** Use place value to round to any place (i.e., ones, tens, hundreds, thousands). | 2 |
| Number & Operations—Fractions | **4.NF.A.1** Explain why a fraction a/b is equivalent to a fraction ($n \times a$)/($n \times b$) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. | **4.NO.1m1** Determine equivalent fractions. | 2 |
| Number & Operations—Fractions | **4.NF.A.2** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. | **4.NO.1n2** Compare up to 2 given fractions that have different denominators. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Number & Operations—Fractions | **4.NF.A.2** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. | **4.SE.1g2** Use =, <, or > to compare 2 fractions (fractions with a denominator of 10 or less). | 2 |
| Measurement & Data | **4.MD.A.3** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor*. | **4.ME.1g2** Solve word problems using perimeter and area where changes occur to the dimensions of a rectilinear figure. | 1 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Measurement & Data | **4.MD.B.4** Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection*. | **4.DPS.1g3** Collect data, organize in graph (e.g., picture graph, line plot, bar graph). | 1 |
| Geometry | **4.G.A.2** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. | **4GM.1h2** Classify two-dimensional shapes based on attributes (# of angles). | 2 |

*Table B.3. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Five Mathematics*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Operations & Algebraic Thinking | **5.OA.B.3** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so*. | **5.PRF.2b1** Generate or select a comparison between two graphs from a similar situation. | Not ratable; CCC is not clear, missing phrase? Generate what? |
| Number & Operations in Base Ten | **5.NBT.A.3a** Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). | **5.NO.1b1** Read, write, or select a decimal to the hundredths place. | 2 |
| Number & Operations in Base Ten | **5.NBT.A.4** Use place value understanding to round decimals to any place. | **5.NO.1b4** Round decimals to the next whole number. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Number & Operations in Base Ten | **5.NBT.B.6** Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | **5.NO.2a5** Solve word problems that require multiplication or division. | 2 |
| Number & Operations in Base Ten | **5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. | **5.NO.2c1** Solve 1 step problems using decimals. | 2 |
| Number & Operations—Fractions | **5.NF.A.2** Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.* | **5.NO.2c2** Solve word problems involving the addition, subtraction, multiplication or division of fractions. | 1 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Number & Operations—Fractions | **5.NF.B.5b** Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying $a/b$ by 1. | **5.PRF.1a1** Determine whether the product will increase or decrease based on the multiplier. | 2 |
| Measurement & Data | **5.MD.A.1** Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. | **5.ME.1b2** Convert standard measurements of length. | 2 |
| Measurement & Data | **5.MD.A.1** Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. | **5.ME.2a1** Solve problems involving conversions of standard measurement units when finding area, volume, time-lapse, or mass. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Geometry | **5.G.A.1** Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). | **5.GM.1c3** Use ordered pairs to graph given points. | 2 |

*Table B.4. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Six Mathematics*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Ratios & Proportional Relationships | **6.RP.A.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."* | **6.PRF.1c1** Describe the ratio relationship between two quantities for a given situation. | 2 |
| Ratios & Proportional Relationships | **6.RP.A.3c** Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. | **6.NO.1f1** Find a percent of a quantity as rate per 100. | 2 |
| The Number System | **6.NS.A.1** Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?* | **6.NO.2c3** Solve one-step, addition, subtraction, multiplication, or division problems with fractions or decimals. | 1 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| The Number System | **6.NS.C.5** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. | **6.NO.1d4** Select the appropriate meaning of a negative number in a real world situation. | 1 |
| The Number System | **6.NS.C.6a** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. | **6.NO.1d2** Locate positive and negative numbers on a number line. | 2 |
| Expressions & Equations | **6.EE.A.2** Write, read, and evaluate expressions in which letters stand for numbers. | **6.PRF.1d1** Solve real world single-step linear equations. | 0 |
| Expressions & Equations | **6.EE.C.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time. | **6.ME.2a2** Solve one-step real world measurement problems involving unit rates with ratios of whole numbers when given the unit rate (3 inches of snow falls per hour, how much in 6 hours). | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Expressions & Equations | **6.EE.B.7** Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which $p$, $q$ and $x$ are all nonnegative rational numbers. | **6.NO.2a6** Solve problems or word problems using up to three digit numbers and any of the four operations. | 2 |
| Geometry | **6.G.A.1** Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. | **6.GM.1d1** Find the area of quadrilaterals. | 2 |
| Statistics & Probability | **6.SP.A.2** Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. | **6.DPS.1d3** Select statement that matches mean, mode, and spread of data for 1 measure of central tendency for given data set. | 2 |

*Table B.5. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Seven Mathematics*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Ratios & Proportional Relationships | **7.RP.A.2** Recognize and represent proportional relationships between quantities. | **7.NO.2f1** Identify the proportional relationship between two quantities (use rules or symbols to show quantitative relationships). | 2 |
| Ratios & Proportional Relationships | **7.RP.A.2a** Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. | **7.NO.2f2** Determine if two quantities are in a proportional relationship using a table of equivalent ratios or points graphed on a coordinate plane. | 2 |
| Ratios & Proportional Relationships | **7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. | **7.PRF.1f1** Use proportional relationships to solve multistep percent problems in real world situations. | 2 |
| Ratios & Proportional Relationships | **7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. | **7.NO.2f6** Solve word problems involving ratios. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| The Number System | **7.NS.A.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. | **7.NO.2i1** Solve multiplication problems with positive/negative numbers. | 2 |
| The Number System | **7.NS.A.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. | **7.NO.2i2** Solve division problems with positive/negative numbers. | 2 |
| Expressions & Equations | **7.EE.B.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. | **7.PRF.1g2** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and in-equalities to solve problems by reasoning about the quantities. | 2 |
| Geometry | **7.G.B.4** Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. | **7.ME.2d1** Apply formula to measure area and circumference of circles. | 2 |
| Geometry | **7.G.B.6** Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. | **7.GM.1h2** Find the surface area of three-dimensional figures using nets of rectangles or triangles. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Statistics & Probability | **7.SP.B.4** Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book*. | **7.DPS.1k1** Analyze graphs to determine or select appropriate comparative inferences about two samples or populations. | 2 |

*Table B.6. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Eight Mathematics*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| The Number System | **8.NS.A.2** Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., $\pi^2$). *For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations*. | **8.NO.1k3** Use approximations of irrational numbers to locate them on a number line. | 2 |
| Expressions & Equations | **8.EE.B.5** Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed. | **8.PRF.1e2** Represent proportional relationships on a line graph. | 2 |
| Expressions & Equations | **8.EE.C.7** Solve linear equations in one variable. | **8.PRF.1g3** Solve linear equations with 1 variable. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Functions | **8.F.B.4** Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (*x, y*) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. | **8.PRF.2e2** Identify the rate of change (slope) and initial value (y-intercept) from graphs. | 2 |
| Functions | **8.F.B.5** Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally. | **8.PRF.1f2** Describe or select the relationship between the two quantities given a line graph of the situation. | 2 |
| Geometry | **8.G.A.2** Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them. | **8.GM.1g1** Recognize congruent and similar figures. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Geometry | **8.G.A.4** Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. | **8.ME.1e1** Describe the changes in surface area, area, and volume when the figure is changed in some way (e.g., scale drawings). | 1 |
| Geometry | **8.G.C.9** Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems. | **8.ME.2d2** Apply the formula to find the volume of 3-dimensional shapes (i.e., cubes, spheres, and cylinders). | 2 |
| Statistics & Probability | **8.SP.A.1** Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. | **8.DPS.1h1** Graph bivariate data using scatter plots and identify possible associations between the variable. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Statistics & Probability | **8.SP.A.4** Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?* | **8.DPS.1k2** Analyze displays of bivariate data to develop or select appropriate claims about those data. | 2 |

*Table B.7. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Eleven Mathematics*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Number and Quantity: The Real Number System | **HSN-RN.A.2** Rewrite expressions involving radicals and rational exponents using the properties of exponents. | **HS.NO.1a1** Simplify expressions that include exponents. | 2 |
| Number and Quantity: Quantities | **HSN-Q.A.1** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. | **H.ME.1a2** Solve real world problems involving units of measurement. | 2 |
| Algebra: Creating Equations | **HSA-CED.A.1** Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions*. | **H.PRF.2b1** Translate a real-world problem into a one-variable linear equation. | 2 |
| Algebra: Creating Equations | **HSA-REI.A.1** Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. | **H.PRF.2b2** Solve equations with one or two variables using equations or graphs. | 1 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Algebra: Creating Equations | **HSA-REI.B.3** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. | **H.ME.1b2** Solve a linear equation to find a missing attribute given the area, surface area, or volume and the other attribute. | 2 |
| Functions: Interpreting Functions | **HSF-LE.A.1** Distinguish between situations that can be modeled with linear functions and with exponential functions. | **H.PRF.1c1** Select the appropriate graphical representation of a linear model based on real world events. | 2 |
| Functions: Interpreting Functions | **HSF-LE.A.3** Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function. | **H.PRF. 2c1** Make predictions based on a given model (for example, a weather model, data for athletes over years). | 2 |
| Geometry: Similarity, Right Triangles, & Trigonometry | **HSG-SRT.A.2** Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides. | **H.GM.1b1** Use definitions to demonstrate congruency and similarity in figures. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Statistics & Probability: Interpreting Categorical & Quantitative Data | **HSS-ID.A.1** Represent data with plots on the real number line (dot plots, histograms, and box plots). | **H.DPS.1b1** Complete a graph given the data, using dot plots, histograms, or box plots. | 2 |
| Statistics & Probability: Interpreting Categorical & Quantitative Data | **HSS-ID.A.2** Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. | **H.DPS.1c1** Use descriptive stats; range, median, mode, mean, outliers/gaps to describe data set. | 2 |

*Table B.8. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Three ELA*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Literature | **3.RL.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. | **3.RL.h1** Answer questions related to the relationship between characters , setting, events, or conflicts (e.g., characters and events, characters and conflicts, setting and conflicts). | 2 |
| Literature | **3.RL.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. | **3.RL.i2** Answer literal questions and refer to text to support your answer. | 2 |
| Literature | **3.RL.2** Recount stories, including fables, folktales, and myths from diverse cultures; determine central message, lesson, or moral and explain how it is conveyed through key details in text.<br>**3.SL.2** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. | **3.RL.k2** Determine the central message, lesson, moral, and key details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. | 2 |
| Informational | **3.RI.5** Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently. | **3.RI.h1** Identify the purpose of a variety of text features. | 1 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Informational | **3.RI.7** Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur). | **3.RI.h4** Use illustrations (e.g., maps, photographs, diagrams, timelines) in informational texts to answer questions. | 2 |
| Informational | **3.RI.2** Determine the main idea of a text; recount the key details and explain how they support the main idea.<br>**3.SL.2** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. | **3.RI.i2** Determine the main idea of text read, read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. | 2 |
| Informational | **3.RI.2** Determine the main idea of a text; recount the key details and explain how they support the main idea. | **3.RI.k5** Determine the main idea of a text; recount the key details and explain how they support the main idea. | 2 |
| Language | **3.L.4** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 3 reading and content, choosing flexibily from an array of strategies.<br>**3.L.4a** Use sentence-level context as a clue to the meaning of the word or phrase. | **3.RWL.i2** Use sentence context as a clue to the meaning of a new word, phrase, or multiple meaning word. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Foundational Skills | **3.RF.4** Read with sufficient accuracy and fluency to support comprehension.<br>**3.RF.4b** Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. | **3.RWL.h2** Identify grade level words with accuracy. | 2 |
| Writing | **W.3.2** Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.<br>**W.3.2a** Introduce a topic and group related information together; include illustrations when useful to aiding comprehension. | **3.WI.p1** Include text features (e.g., numbers, labels, diagrams, charts, graphics) to enhance clarity and meaning. | 2 |
| Writing | **W.3.8** Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. | **3.WI.I4** Sort evidence (e.g., graphic organizer) collected from print and/or digital sources into provided categories. | 2 |
| Writing | **W.3.4** With guidance and support from adults, produce writing in which the development and organization are appropriate to item and purpose. | **3.WL.o1** With guidance and support from adults, produce a clear, coherent, permanent product that is appropriate to the specific item, purpose (e.g., to entertain), or audience. | 2 |

*Table B.9. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Four ELA*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Literature | **4.RL 1** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. | **4.RL.i2** Refer to details and examples in a text when explaining what the text says explicitly. | 2 |
| Literature | **4.RL 2** Determine a theme of a story, drama, or poem from details in the text; summarize the text. | **4.RL.k2** Determine the theme of a story, drama, or poem; refer to text to support answer. | 2 |
| Literature | **4.RL.3** Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a characters thoughts, words, or actions). | **4.RL.l1** Describe character traits (e.g., actions, deeds, dialogue, description, motivation, interactions); use details from text to support description. | 2 |
| Informational | **4.RI.7** Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. | **4.RI.h4** Use information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) to answer questions. | 2 |
| Informational | **4.RI.2** Determine the main idea of a text and explain how it is supported by key details; summarize the text. | **4.RI.i3** Determine the main idea of an informational text. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Informational | **4.RI.7** Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. | **4.RI.I1** Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. | 2 |
| Language | **4.L.4** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibily from an array of strategies.<br>**4.L.4a** Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of the word or phrase. | **4.RWL.i2** Use context as a clue to determine the meaning of unknown words, multiple meaning words, or words showing shades of meaning. | 1 |
| Language | **4.L.6** Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., *wildlife*, *conversation*, and *endangered* when discussing animal preservation). | **4.RWL.j1** Use general academic and domain specific words and phrases accurately. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Foundational Skills | **4.RF.3** Know and apply grade-level phonics and word analysis skills in decoding words.<br>**4.RF.3a** Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context. | **4.RWL.h2** Identify grade level words with accuracy and on successive attempts. | 2 |
| Writing | **W.4.2** Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.<br>**W.4.2a** Introduce a topic clearly and group related information in paragraphs and sections; including formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. | **4.WI.p1** Include formatting (e.g., headings, bulleted information), illustrations, and multimedia when useful to convey information about the topic. | 2 |
| Writing | **W.4.2** Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.<br>**W.4.2e** Provide a concluding statement or section related to the information or explanation presented. | **4.WI.q1** Provide a concluding statement or section to support the information presented. | 2 |
| Writing | **W.4.4** Produce clear and coherent writing in which the development and organization are appropriate to item, purpose, and audience. | **4.WL.o1** Produce a clear coherent permanent that is appropriate to the specific item, purpose (e.g., to entertain), or audience. | 2 |

*Table B.10. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Five ELA*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Literature | **5.RL.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. | **5.RL.b1** Refer to details and examples in a text when explaining what the text says explicitly. | 2 |
| Literature | **5.RL.2** Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text. | **5.RL.c2** Summarize a text from beginning to end in a few sentences. | 1 |
| Literature | **5RL.3** Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact). | **5.RL.d1** Compare characters, settings, events within a story; provide or identify specific details in the text to support the comparison. | 2 |
| Informational | **5.RI.2** Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text. | **5.RI.c4** Determine the main idea, and identify key details to support the main idea. | 2 |
| Informational | **5.RI.5** Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts. | **5.RI.d5** Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.* | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Informational | **5.RI.8** Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s). | **5.RI.e2** Explain how an author uses reasons and evidence to support particular points in a text. | 2 |
| Language | **5.L.4** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibily from an array of strategies.<br>**5.L.4a** Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of the word or phrase. | **5.RWL.a2** Use context to determine the meaning of unknown or multiple meaning words or phrases. | 2 |
| Writing | **W.5.2** Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.<br>**W.5.2a** Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. | **5.WI.b3** Organize ideas, concepts, and information (using definition, classification, comparison/contrast, and cause/effect). | 1 |
| Writing | **W.5.2b** Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. | **5.WI.d1** Support a topic with relevant facts, definitions, concrete details, quotations, or other information and examples. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Writing | **W.5.4** Produce clear and coherent writing in which the development and organization are appropriate to item, purpose, and audience. | **5.WL.h1** Produce a clear coherent permanent product that is appropriate to the specific item, purpose (e.g., to entertain), or audience. | 2 |

*Table B.11. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Six ELA*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Literature | **6.RL.1** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. | **6.RL.b2** Refer to details and examples in a text when explaining what the text says explicitly. | 2 |
| Literature | **6.RL.1** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. | **6.RL.b3** Use specific details from the text (words, interactions, thoughts, motivations) to support inferences or conclusions about characters including how they change during the course of the story. | 2 |
| Literature | **6.RL.2** Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments. | **6.RL.c3** Summarize a text from beginning to end in a few sentences without including personal opinions. | 2 |
| Informational | **6.RI.7** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue. | **6.RI.b4** Summarize information gained from a variety of sources including media or texts.* | 2 |
| Informational | **6.RI.2** Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments. | **6.RI.c2** Provide a summary of the text distinct from personal opinions or judgments. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Informational | **6.RI.3** Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes). | **6.RI.g4** Determine how key individuals, events, or ideas are elaborated or expanded on in a text. | 2 |
| Informational | **6.RI.8** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not. | **6.RI.g6** Evaluate the claim or argument; determine if it is supported by evidence. | 2 |
| Language | **6.L.4** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibily from an array of strategies.<br>**6.L.4a** Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of the word or phrase. | **6.RWL.a1** Use context to determine the meaning of unknown or multiple meaning words or phrases. | 2 |
| Language | **6.L.6** Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression. | **6.RWL.c1** Use general academic and domain specific words and phrases accurately. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Writing | **W.6.3** Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.<br>**W.6.3a** Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. | **6.WL.c1** Organize ideas and events so that they unfold naturally. | 2 |
| Writing | **W.6.3** Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.<br>**W.6.3c** Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. | **6.WL.c3** Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. | 2 |
| Writing | **W.6.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to item, purpose, and audience. | **6.WI.h2** Produce a clear coherent permanent product that is appropriate to the specific item (e.g., topic), purpose (e.g., to inform), and audience (e.g., reader). | 2 |

*Table B.12. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Seven ELA*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Literature | **7.RL.1** Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. | **7.RL.i2** Use two or more pieces of textual evidence to support inferences, conclusions, or summaries of text. | 2 |
| Literature | **7.RL.2** Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text. | **7.RL.j1** Analyze the development of the theme or central idea over the course of the text. | 2 |
| Informational | **7.RI.1** Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. | **7.RI.j1** Use two or more pieces of evidence to support inferences, conclusions, or summaries of text. | 2 |
| Informational | **7.RI.3** Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events). | **7.RI.j5** Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events). | 2 |
| Informational | **7.RI.8** Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims. | **7.RI.k4** Evaluate the claim or argument to determine if they are supported by evidence. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Informational | **7.RI.9** Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts. | **7.RI.I1** Compare/contrast how two or more authors write about the same topic.* | 2 |
| Language | **7.L.4** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibily from an array of strategies.<br>**7.L.4a** Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of the word or phrase. | **7.RWL.g1** Use context as a clue to determine the meaning of a grade appropriate word or phrase. | 2 |
| Writing | **W.7.3** Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.<br>**W.7.3d** Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events. | **7.WL.I1** Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Writing | **W.7.3** Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.<br>**W.7.3e** Provide a conclusion that follows from and reflects on the narrated experiences or events. | **7.WL.o1** Select or provide a conclusion that follows from the narrated experiences or events. | 2 |
| Writing | **W.7.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to item, purpose, and audience. | **7.WI.o1** Produce a clear coherent permanent product that is appropriate to the specific item (e.g., topic), purpose (e.g., to inform), and audience (e.g., reader). | 2 |

*Table B.13. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Eight ELA*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Literature | **8.RL.1** Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text. | **8.RL.i2** Use two or more pieces of evidence to support inferences, conclusions, or summaries of text. | 2 |
| Literature | **8.RL.2** Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text. | **8.RL.j2** Analyze the development of the theme or central idea over the course of the text including its relationship to the characters, setting and plot. | 2 |
| Informational | **8.RI.1** Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text. | **8.RI.j1** Use two or more pieces of evidence to support inferences, conclusions, or summaries of text. | 2 |
| Informational | **8.RI.5** Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept. | **8.RI.k2** Determine how the information in each section contribute to the whole or to the development of ideas. | 2 |
| Informational | **8.RI.8** Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced. | **8.RI.k4** Identify an argument or claim that the author makes. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Informational | **8.RI.9** Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation. | **8.RI.I1** Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.* | 2 |
| Language | **8.L.4** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 8 reading and content, choosing flexibily from an array of strategies.<br>**8.L.4a** Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of the word or phrase. | **8.RWL.g1** Use context as a clue to the meaning of a grade-appropriate word or phrase. | 2 |
| Language | **8.L.6** Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression. | **8.RWL.i1** Use general academic and domain specific words and phrases accurately. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Writing | **W.8.1** Write arguments to support claims with clear reasons and relevant evidence.<br>**W.8.1a** Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. | **8.WP.k2** Create an organizational structure in which ideas are logically grouped to support the writer's claims. | 2 |
| Writing | **W.8.8** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. | **8.WP.j1** Gather relevant information (e.g., highlight in text, quote or paraphrase from text or discussion) from print and or digital sources. | 2 |
| Writing | **W.8.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to item, purpose, and audience. | **8.WI.o1** Produce a clear coherent permanent product that is appropriate to the specific item (e.g., topic), purpose (e.g., to inform), and audience (e.g., reader). | 2 |

*Table B.14. Consensus Quality of Link Rating Between CCC and Identified CCSS – Grade Eleven ELA*

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Literature | **11-12.RL.1** Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain. | **1112.RL.b1** Use two or more pieces of evidence to support inferences, conclusions, or summaries of the plot, purpose or theme within a text. | 2 |
| Literature | **11-12.RL5** Analyze how an author‘s choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning. | **1112.RL.d1** Analyze how an author’s choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning. | 2 |
| Informational | **11-12.RI.1** Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain. | **1112.RI.b1** Use two or more pieces of evidence to support inferences, conclusions, or summaries or text. | 2 |
| Informational | **11-12.RI.2** Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text. | **1112.RI.b5** Determine how key details support the development of the central idea of a text. | 1 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Informational | **11-12.RI.6** Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text. | **1112.RI.d1** Determine the author's point of view or purpose in a text. | 1 |
| Language | **11-12.RI.7** Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem. | **1112.RI.e1** Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.* | 2 |
| Language | **11-12.L.4** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 11-12 reading and content, choosing flexibily from an array of strategies.<br>**11-12.L.4a** Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. | **1112.RWL.b1** Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position in a sentence) as a clue to the meaning of a word or phrase. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Language | **11-12.RI.6** Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text. | **1112.RWL.c3** Develop and explain ideas for why authors made specific word choices within text. | 2 |
| Writing | **W.11-12.2** Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.<br>**W.11-12.2a** Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. | **1112.WI.b2** Create an organizational structure for writing that groups information logically (e.g., cause/effect, compare/contrast, descriptions and examples) to support paragraph focus. | 2 |

| Domain | Common Core State Standard | Core Content Connector | Quality of Content Link<br>0 = content completely different<br>1 = content weakly linked<br>2 = content clearly linked |
|---|---|---|---|
| Writing | **W.11-12.2** Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.<br>**W.11-12.2b** Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience‘s knowledge of the topic. | **1112.WI.b4** Select the facts, extended definitions, concrete details, quotations, or other information and examples that are most relevant to the focus and appropriate for the audience. | 2 |
| Writing | **W.11-12.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to item, purpose, and audience. | **1112.WP.f1** Produce a clear coherent permanent product that is appropriate to the specific item, purpose (to persuade), and audience. | 2 |

# Appendix C. California Alternate Assessment Blueprint Exceptions

*Table C.1. Two CCSS Linked to One CCC in ELA CAA Blueprint*

| Grade | CCSS | CCC |
|---|---|---|
| 3 | 3.RL.2 | 3.RL.k2 |
| 3 | 3.SL.2 | 3.RL.k2 |
| 3 | 3.RI.2 | 3.RI.i2 |
| 3 | 3.SL.2 | 3.RI.i2 |
| 3 | 3.L.4 | 3.RWL.i2 |
| 3 | 3.L.4a | 3.RWL.i2 |
| 3 | 3.RF.4 | 3.RWL.h2 |
| 3 | 3.RF.4b | 3.RWL.h2 |
| 3 | W.3.2 | 3.WI.p1 |
| 3 | W.3.2a | 3.WI.p1 |
| 4 | 4.L.4 | 4.RWL.i2 |
| 4 | 4.L.4a | 4.RWL.i2 |
| 4 | 4.RF.3 | 4.RWL.h2 |
| 4 | 4.RF.3a | 4.RWL.h2 |
| 4 | W.4.2 | 4.WI.p1 |
| 4 | W.4.2a | 4.WI.p1 |
| 4 | W.4.2 | 4.WI.q1 |
| 4 | W.4.2e | 4.WI.q1 |
| 5 | 5.L.4 | 5.RWL.a2 |
| 5 | 5.L.4a | 5.RWL.a2 |
| 5 | W.5.2 | 5.WI.b3 |
| 5 | W.5.2a | 5.WI.b3 |
| 6 | 6.L.4 | 6.RWL.a1 |
| 6 | 6.L.4a | 6.RWL.a1 |
| 6 | W.6.3 | 6.WL.c1 |
| 6 | W.6.3a | 6.WL.c1 |
| 6 | W.6.3 | 6.WL.c3 |
| 6 | W.6.3c | 6.WL.c3 |
| 7 | 7.L.4 | 7.RWL.g1 |
| 7 | 7.L.4a | 7.RWL.g1 |
| 7 | W.7.3 | 7.WL.l1 |
| 7 | W.7.3d | 7.WL.l1 |
| 7 | W.7.3 | 7.WL.o1 |
| 7 | W.7.3e | 7.WL.o1 |

| Grade | CCSS | CCC |
|---|---|---|
| 8 | 8.L.4 | 8.RWL.g1 |
| 8 | 8.L.4a | 8.RWL.g1 |
| 8 | W.8.1 | 8.WP.k2 |
| 8 | W.8.1a | 8.WP.k2 |
| 11 | 11-12.L.4 | 1112.RWL.b1 |
| 11 | 11-12.L.4a | 1112.RWL.b1 |
| 11 | W.11-12.2 | 1112.WI.b2 |
| 11 | W.11-12.2a | 1112.WI.b2 |
| 11 | W.11-12.2 | 1112.WI.b4 |
| 11 | W.11-12.2b | 1112.WI.b4 |

*Table C.2. One CCSS Linked to Two CCCs in CAA Blueprint*

| Subject | Grade | CCSS | CCC |
|---|---|---|---|
| Mathematics | 4 | 4.NF.A.2 | 4.NO.1n2 |
| Mathematics | 4 | 4.NF.A.2 | 4.SE.1g2 |
| Mathematics | 5 | 5.MD.A.1 | 5.ME.1b2 |
| Mathematics | 5 | 5.MD.A.1 | 5.ME.2a1 |
| Mathematics | 7 | 7.RP.A.3 | 7.PRF.1f1 |
| Mathematics | 7 | 7.RP.A.3 | 7.NO.2f6 |
| Mathematics | 7 | 7.NS.A.2 | 7.NO.2i1 |
| Mathematics | 7 | 7.NS.A.2 | 7.NO.2i2 |
| ELA | 3 | 3.RL.1 | 3.RL.h1 |
| ELA | 3 | 3.RL.1 | 3.RL.i2 |
| ELA | 6 | 6.RL.1 | 6.RL.b2 |
| ELA | 6 | 6.RL.1 | 6.RL.b3 |

# Appendix D. California Alternate Assessment Item Analyses at the Subject, Grade, and Form Level

*Table D.1. Mean Percentage of CAA Item Evaluations Rated as Age Appropriate Across Panelists by Grade and Form – Mathematics*

| Grade | N Panelists | Form | N Items | Mean % (N) of Item Evaluations Rated as Inappropriate [a] | Mean % (N) of Item Evaluations Rated as Neutral [a] | Mean % (N) of Item Evaluations Rated as Adapted [a] | Mean % (N) of Item Evaluations Rated as Neutral or Adapted [a] |
|---|---|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 27 | 4.44 (1.2) | 2.22 (0.6) | 93.33 (25.2) | 95.55 (25.8) |
| 3 | 5 | V1T2 | 27 | 2.22 (0.6) | 2.22 (0.6) | 95.56 (25.8) | 97.78 (26.4) |
| 3 | 5 | V1T3 | 27 | 2.22 (0.6) | 2.22 (0.6) | 95.56 (25.8) | 97.78 (26.4) |
| 3 | 5 | V2T1 | 27 | 5.93 (1.6) | 2.22 (0.6) | 91.85 (24.8) | 94.07 (25.4) |
| 3 | 5 | V2T2 | 27 | 3.70 (1.0) | 2.22 (0.6) | 94.07 (25.4) | 96.29 (26.0) |
| 3 | 5 | V2T3 | 27 | 3.70 (1.0) | 2.22 (0.6) | 94.07 (25.4) | 96.29 (26.0) |
| 4 | 5 | V1T1 | 27 | 8.89 (2.4) | 1.48 (0.4) | 89.63 (24.2) | 91.11 (24.6) |
| 4 | 5 | V1T2 | 27 | 2.22 (0.6) | 0.74 (0.2) | 97.04 (26.2) | 97.78 (26.4) |
| 4 | 5 | V1T3 | 27 | 2.22 (0.6) | 0.74 (0.2) | 97.04 (26.2) | 97.78 (26.4) |
| 4 | 5 | V2T1 | 27 | 9.63 (2.6) | 1.48 (0.4) | 88.89 (24.0) | 90.37 (24.4) |
| 4 | 5 | V2T2 | 27 | 2.96 (0.8) | 0.74 (0.2) | 96.30 (26.0) | 97.04 (26.2) |
| 4 | 5 | V2T3 | 27 | 2.96 (0.8) | 0.74 (0.2) | 96.30 (26.0) | 97.04 (26.2) |
| 5 | 5 | V1T1 | 27 | 5.19 (1.4) | 2.96 (0.8) | 91.85 (24.8) | 94.81 (25.6) |
| 5 | 5 | V1T2 | 27 | 5.19 (1.4) | 1.48 (0.4) | 93.33 (25.2) | 94.81 (25.6) |
| 5 | 5 | V1T3 | 27 | 3.70 (1.0) | 1.48 (0.4) | 94.81 (25.6) | 96.29 (26.0) |
| 5 | 5 | V2T1 | 27 | 6.67 (1.8) | 3.70 (1.0) | 89.63 (24.2) | 93.33 (25.2) |
| 5 | 5 | V2T2 | 27 | 6.67 (1.8) | 2.22 (0.6) | 91.11 (24.6) | 93.33 (25.2) |
| 5 | 5 | V2T3 | 27 | 5.19 (1.4) | 2.22 (0.6) | 92.59 (25.0) | 94.81 (25.6) |
| 6 | 6 | V1T1 | 27 | 1.23 (0.3) | 92.59 (25.0) | 6.17 (1.7) | 98.76 (26.7) |
| 6 | 6 | V1T2 | 27 | 1.23 (0.3) | 93.21 (25.2) | 5.56 (1.5) | 98.77 (26.7) |
| 6 | 6 | V1T3 | 27 | 1.23 (0.3) | 93.83 (25.3) | 4.94 (1.3) | 98.77 (26.7) |
| 6 | 6 | V2T1 | 27 | 2.47 (0.7) | 88.27 (23.8) | 9.26 (2.5) | 97.53 (26.3) |

| Grade | N Panelists | Form | N Items | Mean % (N) of Item Evaluations Rated as Inappropriate [a] | Mean % (N) of Item Evaluations Rated as Neutral [a] | Mean % (N) of Item Evaluations Rated as Adapted [a] | Mean % (N) of Item Evaluations Rated as Neutral or Adapted [a] |
|---|---|---|---|---|---|---|---|
| 6 | 6 | V2T2 | 27 | 2.47 (0.7) | 88.89 (24.0) | 8.64 (2.3) | 97.53 (26.3) |
| 6 | 6 | V2T3 | 27 | 2.47 (0.7) | 89.51 (24.2) | 8.02 (2.2) | 97.53 (26.3) |
| 7 | 6 | V1T1 | 27 | 1.23 (0.3) | 90.74 (24.5) | 8.02 (2.2) | 98.76 (26.7) |
| 7 | 6 | V1T2 | 27 | 1.85 (0.5) | 90.12 (24.3) | 8.02 (2.2) | 98.14 (26.5) |
| 7 | 6 | V1T3 | 27 | 1.23 (0.3) | 90.12 (24.3) | 8.64 (2.3) | 98.76 (26.7) |
| 7 | 6 | V2T1 | 27 | 0.00 (0.0) | 92.59 (25.0) | 7.41 (2.0) | 100.00 (27.0) |
| 7 | 6 | V2T2 | 27 | 0.62 (0.2) | 91.98 (24.8) | 7.41 (2.0) | 99.39 (26.8) |
| 7 | 6 | V2T3 | 27 | 0.00 (0.0) | 91.98 (24.8) | 8.02 (2.2) | 100.00 (27.0) |
| 8 | 6 | V1T1 | 27 | 0.00 (0.0) | 91.98 (24.8) | 8.02 (2.2) | 100.00 (27.0) |
| 8 | 6 | V1T2 | 27 | 0.00 (0.0) | 95.06 (25.7) | 4.94 (1.3) | 100.00 (27.0) |
| 8 | 6 | V1T3 | 27 | 0.00 (0.0) | 95.68 (25.8) | 4.32 (1.2) | 100.00 (27.0) |
| 8 | 6 | V2T1 | 27 | 0.62 (0.2) | 90.12 (24.3) | 9.26 (2.5) | 99.38 (26.8) |
| 8 | 6 | V2T2 | 27 | 0.62 (0.2) | 93.21 (25.2) | 6.17 (1.7) | 99.38 (26.8) |
| 8 | 6 | V2T3 | 27 | 0.62 (0.2) | 93.83 (25.3) | 5.56 (1.5) | 99.38 (26.8) |
| 11 | 5 | V1T1 | 27 | 0.74 (0.2) | 54.07 (14.6) | 45.19 (12.2) | 99.26 (26.8) |
| 11 | 5 | V1T2 | 27 | 0.00 (0.0) | 54.07 (14.6) | 45.93 (12.4) | 100.00 (27.0) |
| 11 | 5 | V1T3 | 27 | 0.74 (0.2) | 53.33 (14.4) | 45.93 (12.4) | 99.26 (26.8) |
| 11 | 5 | V2T1 | 27 | 2.22 (0.6) | 44.44 (12.0) | 53.33 (14.4) | 97.77 (26.4) |
| 11 | 5 | V2T2 | 27 | 1.48 (0.4) | 44.44 (12.0) | 54.07 (14.6) | 98.51 (26.6) |
| 11 | 5 | V2T3 | 27 | 2.22 (0.6) | 43.70 (11.8) | 54.07 (14.6) | 97.77 (26.4) |

Note: N is an abbreviation for Number.

[a] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table D.2. Mean Percent of CAA Item Evaluations Rated as Age Appropriate Across Panelists by Grade and Form – ELA*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as Inappropriate [b] | Mean % (N) of Item Evaluations Rated as Neutral [b] | Mean % (N) of Item Evaluations Rated as Adapted [b] | Mean % (N) of Item Evaluations Rated as Neutral or Adapted [b] |
|---|---|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 27 | 2.22 (0.6) | 97.78 (26.4) | 0.00 (0.0) | 97.78 (26.4) |
| 3 | 5 | V1T2 | 27 | 2.22 (0.6) | 97.78 (26.4) | 0.00 (0.0) | 97.78 (26.4) |
| 3 | 5 | V1T3 | 27 | 2.22 (0.6) | 97.78 (26.4) | 0.00 (0.0) | 97.78 (26.4) |
| 3 | 5 | V2T1 | 27 | 0.74 (0.2) | 99.26 (26.8) | 0.00 (0.0) | 99.26 (26.8) |
| 3 | 5 | V2T2 | 27 | 0.74 (0.2) | 99.26 (26.8) | 0.00 (0.0) | 99.26 (26.8) |
| 3 | 5 | V2T3 | 27 | 0.74 (0.2) | 99.26 (26.8) | 0.00 (0.0) | 99.26 (26.8) |
| 4 | 5 | V1T1 | 27 | 0.74 (0.2) | 99.26 (26.8) | 0.00 (0.0) | 99.26 (26.8) |
| 4 | 5 | V1T2 | 26-27 | 0.75 (0.2) | 99.25 (26.6) | 0.00 (0.0) | 99.25 (26.6) |
| 4 | 5 | V1T3 | 27 | 1.48 (0.4) | 98.52 (26.6) | 0.00 (0.0) | 98.52 (26.6) |
| 4 | 5 | V2T1 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 4 | 5 | V2T2 | 26-27 | 0.00 (0.0) | 100.00 (26.8) | 0.00 (0.0) | 100.00 (26.8) |
| 4 | 5 | V2T3 | 27 | 0.74 (0.2) | 99.26 (26.8) | 0.00 (0.0) | 99.26 (26.8) |
| 5 | 5 | V1T1 | 27 | 0.74 (0.2) | 99.26 (26.8) | 0.00 (0.0) | 99.26 (26.8) |
| 5 | 5 | V1T2 | 27 | 1.48 (0.4) | 98.52 (26.6) | 0.00 (0.0) | 98.52 (26.6) |
| 5 | 5 | V1T3 | 27 | 0.74 (0.2) | 99.26 (26.8) | 0.00 (0.0) | 99.26 (26.8) |
| 5 | 5 | V2T1 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 5 | 5 | V2T2 | 27 | 0.74 (0.2) | 99.26 (26.8) | 0.00 (0.0) | 99.26 (26.8) |
| 5 | 5 | V2T3 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 6 | 6 | V1T1 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 6 | 6 | V1T2 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 6 | 6 | V1T3 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 6 | 6 | V2T1 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 6 | 6 | V2T2 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 6 | 6 | V2T3 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as Inappropriate [b] | Mean % (N) of Item Evaluations Rated as Neutral [b] | Mean % (N) of Item Evaluations Rated as Adapted [b] | Mean % (N) of Item Evaluations Rated as Neutral or Adapted [b] |
|---|---|---|---|---|---|---|---|
| 7 | 6 | V1T1 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 7 | 6 | V1T2 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 7 | 6 | V1T3 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 7 | 6 | V2T1 | 27 | 0.00 (0.0) | 95.06 (25.7) | 4.94 (1.3) | 100.00 (27.0) |
| 7 | 6 | V2T2 | 27 | 0.00 (0.0) | 95.06 (25.7) | 4.94 (1.3) | 100.00 (27.0) |
| 7 | 6 | V2T3 | 27 | 0.00 (0.0) | 95.06 (25.7) | 4.94 (1.3) | 100.00 (27.0) |
| 8 | 6 | V1T1 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 8 | 6 | V1T2 | 27 | 0.00 (0.0) | 100.00 (27.0) | 0.00 (0.0) | 100.00 (27.0) |
| 8 | 6 | V1T3 | 26-27 | 0.00 (0.0) | 100.00 (26.8) | 0.00 (0.0) | 100.00 (26.8) |
| 8 | 6 | V2T1 | 27 | 0.62 (0.2) | 99.38 (26.8) | 0.00 (0.0) | 99.38 (26.8) |
| 8 | 6 | V2T2 | 27 | 0.62 (0.2) | 99.38 (26.8) | 0.00 (0.0) | 99.38 (26.8) |
| 8 | 6 | V2T3 | 26-27 | 0.62 (0.2) | 99.38 (26.7) | 0.00 (0.0) | 99.38 (26.7) |
| 11 | 5 | V1T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (27.0) | 100.00 (27.0) |
| 11 | 5 | V1T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (27.0) | 100.00 (27.0) |
| 11 | 5 | V1T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (27.0) | 100.00 (27.0) |
| 11 | 5 | V2T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (27.0) | 100.00 (27.0) |
| 11 | 5 | V2T2 | 27 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (27.0) | 100.00 (27.0) |
| 11 | 5 | V2T3 | 27 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (27.0) | 100.00 (27.0) |

Note: N is an abbreviation for Number.

[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.

[b] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table D.3. Mean Percent of CAA Item Evaluations at Various Levels of Performance Centrality Across Panelists by Grade and Form – Mathematics*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as None [b] | Mean % (N) of Item Evaluations Rated as Some [b] | Mean % (N) of Item Evaluations Rated as All [b] | Mean % (N) of Item Evaluations Rated as Some or All [b] |
|---|---|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 25-27 | 0.83 (0.2) | 24.79 (6.5) | 74.38 (19.5) | 99.17 (26.0) |
| 3 | 5 | V1T2 | 26-27 | 0.79 (0.2) | 24.41 (6.4) | 74.80 (19.8) | 99.21 (26.2) |
| 3 | 5 | V1T3 | 26-27 | 0.00 (0.0) | 25.98 (6.8) | 74.02 (19.8) | 100.00 (26.4) |
| 3 | 5 | V2T1 | 24-27 | 0.85 (0.2) | 23.08 (6.0) | 76.07 (19.8) | 99.15 (25.8) |
| 3 | 5 | V2T2 | 25-27 | 0.81 (0.2) | 22.76 (6.0) | 76.42 (20.0) | 99.19 (26.0) |
| 3 | 5 | V2T3 | 25-27 | 0.00 (0.0) | 24.39 (6.4) | 75.61 (19.8) | 100.00 (26.2) |
| 4 | 5 | V1T1 | 23-27 | 0.00 (0.0) | 25.41 (6.6) | 74.59 (19.4) | 100.00 (26.0) |
| 4 | 5 | V1T2 | 26-27 | 0.00 (0.0) | 22.90 (6.2) | 77.10 (20.6) | 100.00 (26.8) |
| 4 | 5 | V1T3 | 26-27 | 0.76 (0.2) | 22.90 (6.2) | 76.34 (20.4) | 99.24 (26.6) |
| 4 | 5 | V2T1 | 24-27 | 0.00 (0.0) | 26.45 (7.0) | 73.55 (19.2) | 100.00 (26.2) |
| 4 | 5 | V2T2 | 26-27 | 0.00 (0.0) | 23.85 (6.4) | 76.15 (20.4) | 100.00 (26.8) |
| 4 | 5 | V2T3 | 26-27 | 0.77 (0.2) | 23.85 (6.4) | 75.38 (20.2) | 99.23 (26.6) |
| 5 | 5 | V1T1 | 24-27 | 0.00 (0.0) | 27.50 (7.2) | 72.50 (19.0) | 100.00 (26.2) |
| 5 | 5 | V1T2 | 25-27 | 0.83 (0.2) | 25.62 (6.8) | 73.55 (19.4) | 99.17 (26.2) |
| 5 | 5 | V1T3 | 25-27 | 0.00 (0.0) | 25.00 (6.6) | 75.00 (19.8) | 100.00 (26.4) |
| 5 | 5 | V2T1 | 23-27 | 0.86 (0.2) | 26.72 (7.0) | 72.41 (19.0) | 99.14 (26.0) |
| 5 | 5 | V2T2 | 24-27 | 1.71 (0.4) | 24.79 (6.6) | 73.50 (19.4) | 98.29 (26.0) |
| 5 | 5 | V2T3 | 24-27 | 0.83 (0.2) | 24.17 (6.4) | 75.00 (19.8) | 99.17 (26.2) |
| 6 | 6 | V1T1 | 27 | 0.00 (0.0) | 14.29 (3.8) | 85.71 (23.2) | 100.00 (27.0) |
| 6 | 6 | V1T2 | 27 | 0.00 (0.0) | 10.56 (2.8) | 89.44 (24.2) | 100.00 (27.0) |
| 6 | 6 | V1T3 | 27 | 0.00 (0.0) | 11.18 (3.0) | 88.82 (24.0) | 100.00 (27.0) |
| 6 | 6 | V2T1 | 27 | 3.73 (1.0) | 17.39 (4.7) | 78.88 (21.3) | 96.27 (26.0) |
| 6 | 6 | V2T2 | 27 | 3.73 (1.0) | 13.66 (3.7) | 82.61 (22.3) | 96.27 (26.0) |
| 6 | 6 | V2T3 | 27 | 3.73 (1.0) | 14.29 (3.8) | 81.99 (22.2) | 96.27 (26.0) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as None [b] | Mean % (N) of Item Evaluations Rated as Some [b] | Mean % (N) of Item Evaluations Rated as All [b] | Mean % (N) of Item Evaluations Rated as Some or All [b] |
|---|---|---|---|---|---|---|---|
| 7 | 6 | V1T1 | 27 | 0.00 (0.0) | 12.96 (3.5) | 87.04 (23.5) | 100.00 (27.0) |
| 7 | 6 | V1T2 | 27 | 0.00 (0.0) | 9.26 (2.5) | 90.74 (24.5) | 100.00 (27.0) |
| 7 | 6 | V1T3 | 27 | 0.00 (0.0) | 7.41 (2.0) | 92.59 (25.0) | 100.00 (27.0) |
| 7 | 6 | V2T1 | 27 | 0.00 (0.0) | 8.64 (2.3) | 91.36 (24.7) | 100.00 (27.0) |
| 7 | 6 | V2T2 | 27 | 0.00 (0.0) | 4.94 (1.3) | 95.06 (25.7) | 100.00 (27.0) |
| 7 | 6 | V2T3 | 27 | 0.00 (0.0) | 3.09 (0.8) | 96.91 (26.2) | 100.00 (27.0) |
| 8 | 6 | V1T1 | 27 | 0.74 (0.2) | 20.00 (5.4) | 79.26 (21.4) | 99.26 (26.8) |
| 8 | 6 | V1T2 | 27 | 0.00 (0.0) | 10.37 (2.8) | 89.63 (24.2) | 100.00 (27.0) |
| 8 | 6 | V1T3 | 27 | 0.00 (0.0) | 11.85 (3.2) | 88.15 (23.8) | 100.00 (27.0) |
| 8 | 6 | V2T1 | 27 | 0.74 (0.2) | 22.22 (6.0) | 77.04 (20.8) | 99.26 (26.8) |
| 8 | 6 | V2T2 | 27 | 0.00 (0.0) | 12.59 (3.3) | 87.41 (23.7) | 100.00 (27.0) |
| 8 | 6 | V2T3 | 27 | 0.00 (0.0) | 14.07 (3.8) | 85.93 (23.2) | 100.00 (27.0) |
| 11 | 5 | V1T1 | 27 | 2.24 (0.6) | 58.21 (15.8) | 39.55 (10.6) | 97.76 (26.4) |
| 11 | 5 | V1T2 | 27 | 0.75 (0.2) | 55.22 (15.0) | 44.03 (11.8) | 99.25 (26.8) |
| 11 | 5 | V1T3 | 27 | 0.00 (0.0) | 55.97 (15.2) | 44.03 (11.8) | 100.00 (27.0) |
| 11 | 5 | V2T1 | 27 | 2.96 (0.8) | 56.30 (15.2) | 40.74 (11.0) | 97.04 (26.2) |
| 11 | 5 | V2T2 | 27 | 1.48 (0.4) | 53.33 (14.4) | 45.19 (12.2) | 98.52 (26.6) |
| 11 | 5 | V2T3 | 27 | 0.74 (0.2) | 54.07 (14.6) | 45.19 (12.2) | 99.26 (26.8) |

Note: N is an abbreviation for Number.

[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.

[b] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table D.4. Mean Percent of CAA Item Evaluations at Various Levels of Performance Centrality Across Panelists by Grade and Form – ELA*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as None [b] | Mean % (N) of Item Evaluations Rated as Some [b] | Mean % (N) of Item Evaluations Rated as All [b] | Mean % (N) of Item Evaluations Rated as Some or All [b] |
|---|---|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 26-27 | 5.79 (1.6) | 57.02 (15.2) | 37.19 (10.0) | 94.21 (25.2) |
| 3 | 5 | V1T2 | 26-27 | 6.61 (1.8) | 57.02 (15.2) | 36.36 (9.8) | 93.39 (25.0) |
| 3 | 5 | V1T3 | 26-27 | 7.44 (2.0) | 56.20 (15.0) | 36.36 (9.8) | 92.56 (24.8) |
| 3 | 5 | V2T1 | 27 | 1.61 (0.4) | 58.87 (15.9) | 39.52 (10.7) | 98.39 (26.6) |
| 3 | 5 | V2T2 | 27 | 2.42 (0.6) | 58.87 (15.9) | 38.71 (10.5) | 97.58 (26.4) |
| 3 | 5 | V2T3 | 27 | 3.23 (0.8) | 58.06 (15.7) | 38.71 (10.5) | 96.77 (26.2) |
| 4 | 5 | V1T1 | 27 | 0.90 (0.2) | 59.46 (16.0) | 39.64 (10.8) | 99.10 (26.8) |
| 4 | 5 | V1T2 | 27 | 1.80 (0.5) | 55.86 (15.1) | 42.34 (11.4) | 98.20 (26.5) |
| 4 | 5 | V1T3 | 27 | 0.91 (0.2) | 59.09 (16.0) | 40.00 (10.8) | 99.09 (26.8) |
| 4 | 5 | V2T1 | 27 | 0.00 (0.0) | 63.06 (17.0) | 36.94 (10.0) | 100.00 (27.0) |
| 4 | 5 | V2T2 | 27 | 0.90 (0.2) | 59.46 (16.0) | 39.64 (10.8) | 99.10 (26.8) |
| 4 | 5 | V2T3 | 27 | 0.00 (0.0) | 62.73 (17.0) | 37.27 (10.0) | 100.00 (27.0) |
| 5 | 5 | V1T1 | 27 | 2.29 (0.6) | 62.60 (17.0) | 35.11 (9.4) | 97.71 (26.4) |
| 5 | 5 | V1T2 | 27 | 2.33 (0.6) | 64.34 (17.4) | 33.33 (9.0) | 97.67 (26.4) |
| 5 | 5 | V1T3 | 27 | 2.27 (0.6) | 65.15 (17.6) | 32.58 (8.8) | 97.73 (26.4) |
| 5 | 5 | V2T1 | 25-27 | 0.78 (0.2) | 68.22 (18.2) | 31.01 (8.2) | 99.22 (26.4) |
| 5 | 5 | V2T2 | 25-27 | 0.79 (0.2) | 70.08 (18.6) | 29.13 (7.8) | 99.21 (26.4) |
| 5 | 5 | V2T3 | 25-27 | 0.77 (0.2) | 70.77 (18.8) | 28.46 (7.6) | 99.23 (26.4) |
| 6 | 6 | V1T1 | 27 | 0.00 (0.0) | 1.86 (0.5) | 98.14 (26.5) | 100.00 (27.0) |
| 6 | 6 | V1T2 | 27 | 0.00 (0.0) | 2.48 (0.7) | 97.52 (26.3) | 100.00 (27.0) |
| 6 | 6 | V1T3 | 27 | 0.62 (0.2) | 1.86 (0.5) | 97.52 (26.3) | 99.38 (26.8) |
| 6 | 6 | V2T1 | 27 | 0.00 (0.0) | 0.00 (0.0) | 100.00 (27.0) | 100.00 (27.0) |
| 6 | 6 | V2T2 | 27 | 0.00 (0.0) | 0.62 (0.2) | 99.38 (26.8) | 100.00 (27.0) |
| 6 | 6 | V2T3 | 27 | 0.62 (0.2) | 0.00 (0.0) | 99.38 (26.8) | 99.38 (26.8) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as None [b] | Mean % (N) of Item Evaluations Rated as Some [b] | Mean % (N) of Item Evaluations Rated as All [b] | Mean % (N) of Item Evaluations Rated as Some or All [b] |
|---|---|---|---|---|---|---|---|
| 7 | 6 | V1T1 | 27 | 0.00 (0.0) | 8.64 (2.3) | 91.36 (24.7) | 100.00 (27.0) |
| 7 | 6 | V1T2 | 27 | 0.00 (0.0) | 6.79 (1.8) | 93.21 (25.2) | 100.00 (27.0) |
| 7 | 6 | V1T3 | 27 | 0.00 (0.0) | 6.79 (1.8) | 93.21 (25.2) | 100.00 (27.0) |
| 7 | 6 | V2T1 | 27 | 0.00 (0.0) | 6.17 (1.7) | 93.83 (25.3) | 100.00 (27.0) |
| 7 | 6 | V2T2 | 27 | 0.00 (0.0) | 4.32 (1.2) | 95.68 (25.8) | 100.00 (27.0) |
| 7 | 6 | V2T3 | 27 | 0.00 (0.0) | 4.32 (1.2) | 95.68 (25.8) | 100.00 (27.0) |
| 8 | 6 | V1T1 | 27 | 0.00 (0.0) | 1.23 (0.3) | 98.77 (26.7) | 100.00 (27.0) |
| 8 | 6 | V1T2 | 27 | 0.00 (0.0) | 1.23 (0.3) | 98.77 (26.7) | 100.00 (27.0) |
| 8 | 6 | V1T3 | 26-27 | 0.00 (0.0) | 0.63 (0.1) | 99.38 (26.7) | 100.00 (26.8) |
| 8 | 6 | V2T1 | 27 | 0.00 (0.0) | 1.85 (0.5) | 98.15 (26.5) | 100.00 (27.0) |
| 8 | 6 | V2T2 | 27 | 0.00 (0.0) | 1.85 (0.5) | 98.15 (26.5) | 100.00 (27.0) |
| 8 | 6 | V2T3 | 27 | 0.00 (0.0) | 1.25 (0.3) | 98.75 (26.7) | 100.00 (27.0) |
| 11 | 5 | V1T1 | 27 | 0.00 (0.0) | 0.75 (0.2) | 99.25 (26.8) | 100.00 (27.0) |
| 11 | 5 | V1T2 | 27 | 0.00 (0.0) | 1.49 (0.4) | 98.51 (26.6) | 100.00 (27.0) |
| 11 | 5 | V1T3 | 27 | 0.00 (0.0) | 0.75 (0.2) | 99.25 (26.8) | 100.00 (27.0) |
| 11 | 5 | V2T1 | 27 | 0.00 (0.0) | 0.74 (0.2) | 99.26 (26.8) | 100.00 (27.0) |
| 11 | 5 | V2T2 | 27 | 0.00 (0.0) | 1.48 (0.4) | 98.52 (26.6) | 100.00 (27.0) |
| 11 | 5 | V2T3 | 27 | 0.00 (0.0) | 0.74 (0.2) | 99.26 (26.8) | 100.00 (27.0) |

Note: N is an abbreviation for Number.

[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.

[b] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table D.5. Mean Percent of CAA Item Evaluations Rated as Accessible to Different Disability Across Panelists Groups by Grade and Form – Mathematics*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 26-27 | 64.18 (17.2) | 35.82 (9.6) |
| 3 | 5 | V1T2 | 27 | 61.48 (16.6) | 38.52 (10.4) |
| 3 | 5 | V1T3 | 26-27 | 64.18 (17.2) | 35.82 (9.6) |
| 3 | 5 | V2T1 | 26-27 | 70.68 (18.8) | 29.32 (7.8) |
| 3 | 5 | V2T2 | 26-27 | 67.91 (18.2) | 32.09 (8.6) |
| 3 | 5 | V2T3 | 26-27 | 70.68 (18.8) | 29.32 (7.8) |
| 4 | 5 | V1T1 | 27 | 78.52 (21.2) | 21.48 (5.8) |
| 4 | 5 | V1T2 | 27 | 80.74 (21.8) | 19.26 (5.2) |
| 4 | 5 | V1T3 | 27 | 82.96 (22.4) | 17.04 (4.6) |
| 4 | 5 | V2T1 | 27 | 85.19 (23.0) | 14.81 (4.0) |
| 4 | 5 | V2T2 | 27 | 87.41 (23.6) | 12.59 (3.4) |
| 4 | 5 | V2T3 | 27 | 89.63 (24.2) | 10.37 (2.8) |
| 5 | 5 | V1T1 | 27 | 95.56 (25.8) | 4.44 (1.2) |
| 5 | 5 | V1T2 | 27 | 96.30 (26.0) | 3.70 (1.0) |
| 5 | 5 | V1T3 | 27 | 97.04 (26.2) | 2.96 (0.8) |
| 5 | 5 | V2T1 | 26-27 | 94.78 (25.4) | 5.22 (1.4) |
| 5 | 5 | V2T2 | 26-27 | 95.52 (25.6) | 4.48 (1.2) |
| 5 | 5 | V2T3 | 26-27 | 96.27 (25.8) | 3.73 (1.0) |
| 6 | 6 | V1T1 | 27 | 94.44 (25.5) | 5.56 (1.5) |
| 6 | 6 | V1T2 | 27 | 95.68 (25.8) | 4.32 (1.2) |
| 6 | 6 | V1T3 | 27 | 95.68 (25.8) | 4.32 (1.2) |
| 6 | 6 | V2T1 | 27 | 96.30 (26.0) | 3.70 (1.0) |
| 6 | 6 | V2T2 | 27 | 97.53 (26.3) | 2.47 (0.7) |
| 6 | 6 | V2T3 | 27 | 97.53 (26.3) | 2.47 (0.7) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|---|
| 7 | 6 | V1T1 | 27 | 95.06 (25.7) | 4.94 (1.3) |
| 7 | 6 | V1T2 | 27 | 94.44 (25.5) | 5.56 (1.5) |
| 7 | 6 | V1T3 | 27 | 95.06 (25.7) | 4.94 (1.3) |
| 7 | 6 | V2T1 | 27 | 97.53 (26.3) | 2.47 (0.7) |
| 7 | 6 | V2T2 | 27 | 96.91 (26.2) | 3.09 (0.8) |
| 7 | 6 | V2T3 | 27 | 97.53 (26.3) | 2.47 (0.7) |
| 8 | 6 | V1T1 | 27 | 94.44 (25.5) | 5.56 (1.5) |
| 8 | 6 | V1T2 | 27 | 96.30 (26.0) | 3.70 (1.0) |
| 8 | 6 | V1T3 | 27 | 96.91 (26.2) | 3.09 (0.8) |
| 8 | 6 | V2T1 | 27 | 93.21 (25.2) | 6.79 (1.8) |
| 8 | 6 | V2T2 | 27 | 95.06 (25.7) | 4.94 (1.3) |
| 8 | 6 | V2T3 | 27 | 95.68 (25.8) | 4.32 (1.2) |
| 11 | 5 | V1T1 | 27 | 62.22 (16.8) | 37.78 (10.2) |
| 11 | 5 | V1T2 | 27 | 62.22 (16.8) | 37.78 (10.2) |
| 11 | 5 | V1T3 | 27 | 61.48 (16.6) | 38.52 (10.4) |
| 11 | 5 | V2T1 | 27 | 59.26 (16.0) | 40.74 (11.0) |
| 11 | 5 | V2T2 | 27 | 59.26 (16.0) | 40.74 (11.0) |
| 11 | 5 | V2T3 | 27 | 58.52 (15.8) | 41.48 (11.2) |

Note: N is an abbreviation for Number.

[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.

[b] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table D.6. Mean Percent of CAA Item Evaluations Rated as Accessible to Different Disability Groups Across Panelists by Grade and Form – ELA*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 27 | 98.52 (26.6) | 1.48 (0.4) |
| 3 | 5 | V1T2 | 27 | 98.52 (26.6) | 1.48 (0.4) |
| 3 | 5 | V1T3 | 26-27 | 98.51 (26.4) | 1.49 (0.4) |
| 3 | 5 | V2T1 | 27 | 99.26 (26.8) | 0.74 (0.2) |
| 3 | 5 | V2T2 | 27 | 99.26 (26.8) | 0.74 (0.2) |
| 3 | 5 | V2T3 | 26-27 | 99.25 (26.6) | 0.75 (0.2) |
| 4 | 5 | V1T1 | 27 | 99.26 (26.8) | 0.74 (0.2) |
| 4 | 5 | V1T2 | 27 | 99.26 (26.8) | 0.74 (0.2) |
| 4 | 5 | V1T3 | 27 | 99.26 (26.8) | 0.74 (0.2) |
| 4 | 5 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 4 | 5 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 4 | 5 | V2T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V1T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V2T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 6 | 6 | V1T1 | 27 | 99.38 (26.8) | 0.62 (0.2) |
| 6 | 6 | V1T2 | 27 | 99.38 (26.8) | 0.62 (0.2) |
| 6 | 6 | V1T3 | 27 | 99.38 (26.8) | 0.62 (0.2) |
| 6 | 6 | V2T1 | 27 | 99.38 (26.8) | 0.62 (0.2) |
| 6 | 6 | V2T2 | 27 | 99.38 (26.8) | 0.62 (0.2) |
| 6 | 6 | V2T3 | 27 | 99.38 (26.8) | 0.62 (0.2) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|---|
| 7 | 6 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V1T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V2T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V1T3 | 26-27 | 100.00 (26.8) | 0.00 (0.0) |
| 8 | 6 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V2T3 | 26-27 | 100.00 (26.8) | 0.00 (0.0) |
| 11 | 5 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V1T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V2T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |

Note: N is an abbreviation for Number.

[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.

[b] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table D.7. Mean Percent of CAA Item Evaluations Rated as Amenable to Accommodations or Supports Across Panelists by Grade and Form – Mathematics*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 26-27 | 94.78 (25.4) | 5.22 (1.4) |
| 3 | 5 | V1T2 | 27 | 95.56 (25.8) | 4.44 (1.2) |
| 3 | 5 | V1T3 | 26-27 | 94.78 (25.4) | 5.22 (1.4) |
| 3 | 5 | V2T1 | 26-27 | 95.49 (25.4) | 4.51 (1.2) |
| 3 | 5 | V2T2 | 26-27 | 96.27 (25.8) | 3.73 (1.0) |
| 3 | 5 | V2T3 | 26-27 | 95.49 (25.4) | 4.51 (1.2) |
| 4 | 5 | V1T1 | 27 | 97.78 (26.4) | 2.22 (0.6) |
| 4 | 5 | V1T2 | 27 | 97.78 (26.4) | 2.22 (0.6) |
| 4 | 5 | V1T3 | 27 | 97.78 (26.4) | 2.22 (0.6) |
| 4 | 5 | V2T1 | 27 | 99.26 (26.8) | 0.74 (0.2) |
| 4 | 5 | V2T2 | 27 | 99.26 (26.8) | 0.74 (0.2) |
| 4 | 5 | V2T3 | 27 | 99.26 (26.8) | 0.74 (0.2) |
| 5 | 5 | V1T1 | 27 | 97.04 (26.2) | 2.96 (0.8) |
| 5 | 5 | V1T2 | 27 | 97.78 (26.4) | 2.22 (0.6) |
| 5 | 5 | V1T3 | 27 | 97.78 (26.4) | 2.22 (0.6) |
| 5 | 5 | V2T1 | 26-27 | 97.01 (26.0) | 2.99 (0.8) |
| 5 | 5 | V2T2 | 26-27 | 97.76 (26.2) | 2.24 (0.6) |
| 5 | 5 | V2T3 | 26-27 | 97.76 (26.2) | 2.24 (0.6) |
| 6 | 6 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 6 | 6 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 6 | 6 | V1T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 6 | 6 | V2T1 | 27 | 99.38 (26.8) | 0.62 (0.2) |
| 6 | 6 | V2T2 | 27 | 99.38 (26.8) | 0.62 (0.2) |
| 6 | 6 | V2T3 | 27 | 99.38 (26.8) | 0.62 (0.2) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|---|
| 7 | 6 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V1T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V2T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V1T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V2T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V1T1 | 27 | 91.11 (24.6) | 8.89 (2.4) |
| 11 | 5 | V1T2 | 27 | 88.89 (24.0) | 11.11 (3.0) |
| 11 | 5 | V1T3 | 27 | 90.37 (24.4) | 9.63 (2.6) |
| 11 | 5 | V2T1 | 27 | 94.07 (25.4) | 5.93 (1.6) |
| 11 | 5 | V2T2 | 27 | 91.85 (24.8) | 8.15 (2.2) |
| 11 | 5 | V2T3 | 27 | 93.33 (25.2) | 6.67 (1.8) |

Note: N is an abbreviation for Number.

[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.

[b] Values in parentheses denote the mean number of items rated across panelists for each category.

*Table D.8. Mean Percent of CAA Item Evaluations Rated as Amenable to Accommodations or Supports Across Panelists by Grade and Form – ELA*

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|---|
| 3 | 5 | V1T1 | 26-27 | 99.25 (26.6) | 0.75 (0.2) |
| 3 | 5 | V1T2 | 26-27 | 99.25 (26.6) | 0.75 (0.2) |
| 3 | 5 | V1T3 | 26-27 | 99.25 (26.4) | 0.75 (0.2) |
| 3 | 5 | V2T1 | 26-27 | 99.25 (26.4) | 0.75 (0.2) |
| 3 | 5 | V2T2 | 26-27 | 99.25 (26.4) | 0.75 (0.2) |
| 3 | 5 | V2T3 | 26-27 | 99.25 (26.4) | 0.75 (0.2) |
| 4 | 5 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 4 | 5 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 4 | 5 | V1T3 | 27 | 99.26 (26.8) | 0.74 (0.2) |
| 4 | 5 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 4 | 5 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 4 | 5 | V2T3 | 27 | 99.26 (26.8) | 0.74 (0.2) |
| 5 | 5 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V1T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 5 | 5 | V2T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 6 | 6 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 6 | 6 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 6 | 6 | V1T3 | 26-27 | 100.00 (26.8) | 0.00 (0.0) |
| 6 | 6 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 6 | 6 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 6 | 6 | V2T3 | 26-27 | 100.00 (26.8) | 0.00 (0.0) |

| Grade | N Panelists | Form | N Items [a] | Mean % (N) of Item Evaluations Rated as Yes [b] | Mean % (N) of Item Evaluations Rated as No [b] |
|---|---|---|---|---|---|
| 7 | 6 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V1T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 7 | 6 | V2T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V1T3 | 26-27 | 100.00 (26.8) | 0.00 (0.0) |
| 8 | 6 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 8 | 6 | V2T3 | 26-27 | 100.00 (26.8) | 0.00 (0.0) |
| 11 | 5 | V1T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V1T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V1T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V2T1 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V2T2 | 27 | 100.00 (27.0) | 0.00 (0.0) |
| 11 | 5 | V2T3 | 27 | 100.00 (27.0) | 0.00 (0.0) |

Note: N is an abbreviation for Number.

[a] A range of values denotes at least one panelist did not provide a rating on all CAA items.

[b] Values in parentheses denote the mean number of items rated across panelists for each category.

# Appendix E. Detailed Descriptions of Figures

Figure 1 depicts a sample portion of the panelist CCC rating form. This figure is a screen capture picture of an Excel® data entry rating form that included rows for each Core Content Connector and a series of columns for different rating categories. In the figure, a single row is displayed below the header row.

- Column 1 – the header is Domain with the following text in the row: Operations & Algebraic Thinking.
- Column 2 – the header is NCSC Percentage with the value 10% in the row.
- Column 3 – the header is CAA Percentage with the value 15% in the row.
- Column 4 – the header is Common Core State Standard with the following text in the row: 5.OA.B.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*
- Column 5 – the header is Core Content Connector with the following text in the row: 5.PRF.2b1 Generate or select a comparison between two graphs from a similar situation.
- Column 6 – the header is Essential Understanding with the following text in the row: Compare two pieces of information provided in a single display.
- Column 7 – the header contains three pieces of information. First, the alignment dimension being evaluated is Performance Centrality. Second, the question being addressed by this alignment category is: Does the CCC measure performance level of the CCSS standard? Lastly, the rating options are defined: N – None, they are different; S – Some, partial match, and A – All, identical. Rows below the header are blank for panelists to record their ratings.
- Column 8 – the header contains three pieces of information. First, the alignment dimension being evaluated is Age Appropriateness, Second, the question being addressed by this alignment category is: Is the CCC grade-level appropriate? Lastly, the rating options are defined: I – Inappropriate; N – Neutral; and A – Adapted. Rows below the header are blank for panelists to record their ratings.
- Column 9 – the header is Notes/Comments with the direction to panelists asking them to explain their reasoning for a low rating on either the Performance Centrality (Column 7) or Age Appropriateness (Column 8) alignment dimension. Rows below the header are blank for panelists to record their comments.

Figure 2 depicts a sample portion of the panelist CAA item rating form. This figure is a screen capture picture of an Excel® data entry rating form with rows for each test item and a series of columns for different rating categories. In the figure, seven example rows are displayed below the header row.

- Column 1 – the header is Ordered Item Number with text in the example rows displaying the item number as seen by a student during administration.
- Column 2 – the header is ETS Item Code with the dummy variable “Item num” listed in each of the example rows.
- Column 3 – the header is DFA Version with the number 1 in each example row.
- Column 4 – the header is DFA Page Number with a dummy variable “num” listed in each example row.
- Column 5 – the header is Enter CCC Code and the cells below are empty for panelists to record their selected CCC for the item identified in each row.
- Column 6 – the header is Enter CCC Code 2 and the cells below are empty for panelists to record a second CCC, if applicable, for the item identified in each row.
- Column 7 – the header contains two pieces of information. First, the alignment dimension being evaluated is Quality of Link. Second, the rating options are defined: 0 – No Link; 1 – Partially Linked; and 2 – Fully Linked. The cells below the header are empty for panelists to record their rating for the item identified in each row.
- Column 8 – the header is Explanation with the direction to panelists asking them to explain why the item content does not match a CCC if the Quality of Link is rated a 0 or 1 in Column 7. The cells below the header are empty for panelists to record their explanation for the item identified in each row.
- Column 9 – the header contains two pieces of information. First, the alignment dimension being evaluated is DOK (depth of knowledge). Second, the rating options are defined: 1 – Attention; 2 – Rote Knowledge, Memorize, & Recall; 3 – Use of Knowledge & Information; 4 – Comprehension; 5 – Application; and 6 – Analysis Evaluation. The cells below the header are empty for panelists to record their rating for the item identified in each row.
- Column 10 – the header contains three pieces of information. First, the alignment dimension being evaluated is Performance Centrality. Second, the question being addressed by this category is: Does the item require performance similar to CCSS/CCC? Lastly, the rating options are defined: N – None, is different; S – Some, partial match; A – All, identical. The cells below the header are empty for panelists to record their rating for the item identified in each row.
- Column 11 – the header contains 3 pieces of information. First, the alignment dimension being evaluated is Age Appropriate. Second, the question being addressed by this category is: Is item content based on grade-level content?

Lastly, the rating options are defined: I – Inappropriate; N – Neutral; and A – Adapted. The cells below the header are empty for panelists to record their rating for the item identified in each row.

- Column 12 – the header contains several pieces of information. First, the alignment dimension being evaluated is Barriers to Demonstrating Knowledge. Second, two questions are being addressed by this category: Is the item accessible to different disability groups? Can the item be modified or have supports provided without changing the meaning or difficulty? Lastly, the rating options for each question are defined: Y – Yes and N – No. The cells below the header for each question are empty for panelists to record their rating for the item identified in each row.
- Column 13 – the header is Notes/Comments with the direction to panelists asking them to explain their reasoning for a low rating for Performance Centrality (Column 10), Age Appropriate (Column 11), or Barriers to Demonstrating Knowledge (Column 12). The cells below this header for each question are empty for panelists to record any comments.