# Common Core Standards: The New US Intended Curriculum

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Finalized on June 2, 2010, the Common Core Standards represent an unprecedented shift away from disparate content guidelines across individual states in the areas of English language arts and mathematics. Led jointly by the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO), the Common Core State Standards Initiative developed the core standards as a state-led effort aiming to establish consensus on expectations for student knowledge and skills that should be developed from grades Kindergarten-12.

As of October 17, 2010, 36 states and the District of Columbia have adopted the standards (http://www.corestandards.org/). Although the U.S. Department of Education (USDE) was not directly involved in their creation, the development and adoption of a common set of standards are included among the criteria in the scoring rubric used in granting awards in the Race to the Top competition. Additional points in the scoring rubric are contingent upon the development of common assessments and supporting the transition to using both those assessments and the standards. On September 2, 2010, two consortia representing multiple states were awarded a total of $330 million toward the development of assessments aligned to the common standards. The SMARTER Balanced Assessment Coalition (SBAC), representing 31 states, was awarded $160 million, while the Partnership for Assessment of Readiness for College and Careers (PARCC), representing 26 states, was awarded $170 million (12 states are members of both consortia).

Under *No Child Left Behind* (NCLB), a state's student achievement assessments must be aligned to the content standards specified by the state for English language arts and reading (ELAR), mathematics, and science (with annual testing in ELAR and math in grades 3 through 8, and two assessments in science during the same span of grades). Previous studies indicate that the average level of alignment of state standards with assessments is moderate (Webb, 2005, 2006; Porter, 2002; Polikoff & Porter, 2010).

Just how much change do the common core standards represent in comparison to current practice across states in the US? The common core standards represent the intended curriculum, just as state content standards represent the intended curriculum for each state. We compare the content of the intended curriculum for the common core standards to the content of the intended curriculum for current state standards in English Language Arts and Reading for grades 3-8. We also compare the common core intended curriculum to the National Council of Teachers of Mathematics content standards (comparable national professional content standards do not exist in English Language Arts and Reading). Similarly, we ask how the current state assessed curricula compare to the common core standards. Of course, they were not built to be aligned to the common core standards. Still, some believe that the tested curriculum is closer to the enacted curriculum than is the intended curriculum as stated in content standards. The question we really wish to address is how much change in the enacted curriculum is represented in the new common core standards? It would be best if we had good descriptions of the enacted curriculum as delivered by teachers and as experienced by students, but we do not. We use the state content standards and assessments as crude proxies for the real target of interest.

Common core standards represent an opportunity to create national curriculum. There is great controversy surrounding the pros and cons of having a national curriculum in core academic subjects, such as Mathematics and English Language Arts and Reading in the United States. Some argue that mathematics is mathematics and reading is reading; why should we have different expectations for what students are to know and be able to do, simply because they live in Ohio versus Mississippi. Others are critical of the content standards and aligned assessments that have evolved over the past decade and a half or so. Standards-based reform, according to some, was to bring more focus to the US curriculum, emphasizing a more focused curriculum similar to high achieving countries around the world (Schmidt et al, 2001). The new common core standards may represent greater focus than is typical for the state standards. Some argue the benefits of a national curriculum in terms of efficiencies. One national curriculum would mean that, for example, each state doesn't have to develop (a) their own content standards, (b) their own assessments, and (c) their own curriculum guides. Even if there are to be two multi-state consortia building assessments, two assessments is more efficient than 50. Perhaps in the efficiencies, dramatic positive steps can be taken in the quality of assessments. For example, maybe with the common core standards and one or two aligned assessments, the aligned assessments can be (a) delivered electronically, (b) computer-adaptive. Perhaps through electronic delivery, they can be more animated and engaging; through computer-adaptive testing they can be more efficient with fewer problems of floor and ceiling effects. There are implications of efficiencies for other sectors of the education business as well; perhaps the development of curriculum materials can be more focused and efficient and through that, even more effective. Perhaps professional development and pre-service teacher education can be similarly more focused and effective.

For now, our question again is, how much change do the common core standards represent? The more change they represent, the harder the change will be to accomplish. At the same time, the more change they represent, perhaps the more good they will do.

Results from the National Assessment of Educational Progress (NAEP) have been used in recent years to evaluate purported gains in student achievement at the state level. In terms of the proficiency ratings established in various assessments, multiple studies have shown large differences in performance levels between states, when compared to each other and to NAEP (Cronin, Dahlin, Adkins, & Kingsbury, 2007; National Center for Education Statistics, 2007). Additionally, an analysis of multiple states' math assessments with the NAEP math assessment suggests a similar variability in alignment both between states and when compared to NAEP. Such discrepancies underscore the importance of establishing common metrics by which progress can be measured. Among other effects, adoption of the core standards for ELAR and mathematics will presumably allow for improved comparability of student-achievement results in these content areas between participants within each assessment consortium.

## How We Measure Alignment

For content analysis, we made use of the data from a nationally recognized content analysis procedure, the Surveys of Enacted Curriculum (SEC). This approach does not rely on direct comparison of assessments or assessment items with objectives or standards. Instead, a two-dimensional framework of topics organized by cognitive demands is employed (Porter, 2008). The topic dimension is divided into general areas: 16 for mathematics and 14 for ELAR. Each general area is further divided into 4 to 19 topics for a total of 217 topics in mathematics and 163 topics in ELAR. The second dimension consists of five levels of cognitive demands, which differ by subject. For the coding process, all documents are analyzed by three to five trained content analysts. Each analyst places each objection (or test item) into one or more of the cells defined by the intersection of topics and cognitive demand. These data are then converted into proportions and averaged across the content analysts. The matrix of proportions is averaged across content analysts for use in the calculation of alignment.

*Alignment Calculation*

After obtaining the matrix, the cell proportions are converted to an alignment index, which can be used to determine the extent to which two documents have the same content messages (Porter, 2002). The index indicates to what extent the cell proportions of topics, by cognitive demand, are equal to each other across two documents. The index is defined as

$$alignment\ index = 1 - \sum |x_i - y_i| / 2$$

Where $x_i$ and $y_i$ stand for the proportion in cell *i* for document *x* and *y*, respectively. The index ranges from 0 to 1, with 1 indicating perfect alignment (i.e., having 100% of the content in common).

*Strength*

First, the SEC approach to calculating alignment is recognized for its applicability to compare any two documents of content standards, assessments, curriculum materials, and instructional practices (Martone & Sireci, 2009). Second, of the most widely-used approaches, it is the only one to have provided data about the reliability of alignment procedures (Porter, Polikoff, Zeidner, & Smithson, 2008). Another advantage of the SEC approach lies in the use of content maps to visualize the nature of alignment or misalignment. The maps are generated to resemble topographical maps in which specific topics are displayed like lines of latitude and cognitive demands like lines of longitude. Moreover, the SEC approach provides the flexibility to examine the marginal values of the two dimensions and allows collapsing in the topic dimension (e.g., examining the alignment by general topics instead of by specific topics). Finally, it makes the adjustment of the alignment index possible by dividing the maximum possible value and helps to identify the types of misalignment (e.g., under-tested, over-tested, tested in different cognitive level, or completely misaligned) (Polikoff & Porter, 2008).

**CCSSO Analysis of Common Core Standards**

In the summer of 2010, CCSSO convened 35 specialists in math and English language arts to conduct a content analysis of the Common Core State Standards using the content frameworks and SEC methodology. All grade levels (K–12) of the Common Core State Standards were included in the analysis process.

Specialist teams of four persons reviewed the standards documents to provide coding of each standards statement to the SEC framework categories. Each document was thus characterized by a set of common descriptors and the descriptors were coded to a degree of emphasis by a specific set of standards. More specifically, the analysts independently coded each objective in the standards, though objects could be flagged for group discussion.

## Results of Alignment from our Previous Studies

*Standard to Standard*

In a previous analysis (Porter, 2008), we considered the alignment of standards across states. At individual grade levels, indices for the alignment of standards with standards across states are low to moderate. The average values are for mathematics, .27 at fourth grade and .20 at eighth grade; for ELAR, .24 at fourth grade and .25 at eighth grade. When the content standards are aggregated across grades, the values are higher: .47 for mathematics and .53 for ELAR.

*Assessment to Assessment*

The alignment of assessments to assessments is higher than the alignment of standards to standards for ELAR (.31-.33) and mathematics (.31-.33) (Porter, 2008). There is no consistent relationship between the alignment of standards to standards and the alignment of assessments to assessments across states. As was the case for comparison of individual grade levels, the average alignment of aggregated assessments across states was higher than the average alignment of aggregated standards across states. For mathematics, the average aggregated alignment was .51 and for ELAR, it was .55. Thus, we can say that, in mathematics and ELAR on average, slightly more than half of the content on which students are tested in mathematics and ELAR between grades 4-8 and 3-8, respectively, is common among states.

*Standard to Assessment*

Results suggest moderate to poor within-state assessment-to-standards alignment in each subject. For mathematics, the average within-state test-standard alignment is .30 for fourth grade and .26 for eighth grade. For ELAR, the average is .19 for fourth grade and .18 for eighth grade (Polikoff & Porter, 2008). The alignment of one state's assessment to another state's standards is not considerably lower than the alignment of assessments to standards within a state. The average alignment of aggregated standards with aggregated assessment was .28 for ELAR and .43 for mathematics.

In general, we found that assessments are not very similar across states and, in mathematics, are no more closely aligned with NAEP than with each other. However, assessments are more aligned with each other than are standards with each other. This finding is surprising, given that assessments are supposed to represent a sample from the domain of the standards. Also, assessments are not as well aligned with standards as might be assumed.

## Results

We first consider the alignment between state standards and the common core. The results displayed in Table 1 show the alignment of state math standards to the common core standards by grade level. This table also presents the alignment between the NCTM standards and the common core. We found low to moderate alignment between state standards and the common core. Across the 10 grade levels of common core standards, alignments ranged from 0.01 to 0.51, with an average alignment of 0.25. No significant patterns in degree of alignment were found across the grade levels of the common core. Moreover, the NCTM standards did not exhibit a higher degree of alignment with the common core standards than the state standards on average. Figure 1 provides an illustration of the alignment between grade 5 common core and NCTM standards. These maps show that the alignment between the two standards is .27, indicating that 27 percent of the content in the standards is shared in common. As can be seen from the maps, the common core standards place more emphasis on the topics of Number Sense and Operations, particularly at the Procedures and Demonstrate cognitive demand levels. The NCTM standards, however, put a greater focus on Geometric Concepts and Data Displays as well as Probability, which the 5$^{th}$ grade common core standards do not cover at all.

A similar pattern emerged when we examined the alignment between common core and state standards in ELAR. Alignment indices ranged from 0.10 to 0.48, with an average alignment between ELAR state and common core standards of 0.30. Table 2 shows the alignments across grade level for all available state standards.

One possible explanation for the moderate alignments reported here may be the specification of content at particular grade levels. Standards may in fact share more content but because content is specified to be taught to a particular grade level, paired grade level standards may not be as highly aligned as if content from the surrounding grades were also considered in the calculation. One way to investigate this possibility is to aggregate the content of standards across a series of grades and calculate alignment indices between these new standards formulations. We present two different aggregations of standards: grades 3-6 and grades 3-8. We do in fact find that the aggregation process has strengthened alignment. Average math alignment rose from 0.25 to 0.36 when looking across four grade levels of content (Grades 3-6, Table 3). And from 0.25 to 0.41 when looking across the six grade levels from 3 to 8. The same pattern was mirrored for ELAR standards. Mean alignment rose to 0.38 when aggregating across grades 3-6 and to 0.43 when aggregating across grades 3-8 in ELAR. While the aggregation process does raise the level of alignment, there is still a considerable amount of difference in the content between state and common core standards. To explore this further, we examine what if any content is unique to the common core and what content is included in state standards but absent from those of the common core.

Given these relatively moderate levels of alignment, one question we intend to answer is the degree to which there are systematic differences in the content covered in the common core standards compared with states. We are interested to know both what content is unique to the common core and what content is unique to state standards. Preliminary results show that there are some distinct differences. For example, in Grade 5 math, 51 percent of the content in the common core standards for that grade were systematically not covered in state standards, where we defined unique content as content that was not included in state standards and comprised at least 1 percent of the total common core content. This content covered a variety of topic areas from number sense to advanced geometry and was not at a particular level of cognitive demand, though most were at the level of perform procedures or demonstrate understanding of mathematical ideas. Though there was a much wider breadth of content unique to the common core than to the state standards, the unique content in both tended to cluster in particular areas. For example, coordinate geometry was one of the topic areas that was unique to the common core. This content was unique not just at one level of cognitive demand, but across three (memorize, perform procedures and demonstrate understandings). Similarly, the common core covers the topic of area and volume to a unique degree and had unique content at the intersection of this topic and four cognitive demands (memorize, perform procedures, demonstrate understandings and solve non-routine problems).

In contrast, an average of 13 percent of the standards content was unique to states and not included in the common core. While the content common to states covered a much smaller variety of topics (estimation, time and temperature, summarizing data in graphs or tables, measures of central tendency, and simple probability), the unique content in state standards also tended to cluster around a topic area and fan out along the cognitive demand dimension. For example, state standards in grade 5 had unique content covering measures of central tendency (means, medians and mode) at the levels of (perform procedures, demonstrate understanding, and conjecture, generalize or prove).

Perhaps because the common core ELAR standards are less targeted, we found fewer areas where the common core and state standards covered unique content. For example, in examining the 8$^{th}$ grade ELAR standards, we found that only 8 percent of the content in the common core was unique and not covered in state standards. Content unique to state standards was even more limited, only one area across state standards was not included in the common core (account for 1.5 percent of content): the ability to analyze or investigate strategies for comprehension.

*Common Core Alignment with State Assessments and NAEP*

We also examined the alignment of state assessments to the common core standards. As assessments are a sample of the domain, we would expect that alignment to the Common Core standards will not be as high for assessments as for standards, which in theory map the full domain. Average alignment across common core standard grades and state assessments is slightly lower than compared to the alignment of standards. Across all grades in math, the average alignment of assessments to common core standards is 0.19 compared with 0.25 for standards. Table 4 depicts these assessment alignments by state. Less variability in alignment indices exists between assessments and the common core standards than between the alignment of state and common core standards. For math, the alignment index ranges from 0.11 to 0.31 across states and grades for assessments. In ELAR, the average alignment of assessments to the common core standards is 0.18, with a range of 0.07 to 0.32 (see Table 5 for full results).

Another question of interest is the degree to which NAEP assessments map to the common core standards. Alignment indices were calculated for NAEP assessments for grades 4 and 8. For math, the alignment of NAEP in 4$^{th}$ grade was 0.28, which is higher than the average alignment of 4$^{th}$ grade state assessments to the common core standards of 0.20. In 8$^{th}$ grade math, the average 8$^{th}$ grade state math assessment alignment is 0.20, and the NAEP 8$^{th}$ grade alignment is 0.21. However in ELAR, the NAEP assessments have higher alignments than the average state assessments in both 4$^{th}$ and 8$^{th}$ grades:

NAEP is aligned 0.25 in grade 4 and 0.24 in grade 8 to the common core standards for those grades, compared to an average alignment of 0.17for state assessments in both grades.

We also calculated aggregated alignments between the common core and state assessments for grades 3-6 and 3-8 to examine the extent to which cross-grade assessments cover a larger portion of the domain detailed in the standards. Results from these analyses are presented in Table 6. While the average alignments when aggregating across grades increase for both math and ELAR, there is a larger increase to math alignment. In math, the average aggregate alignment for grades 3-6 is 0.34 and 0.40 for aggregating across grades 3-8. In ELAR, the average alignment is .24 for grades 3-6 and 0.26 for grades 3-8.

In examining the content that is unique to state assessments relative to the common core, the same general pattern described above held: common core standards include a variety of content across many coarse grained topic areas that is not included in state assessments. In many ways this is not surprising as assessments are a sample of a domain and thus we would expect lower levels of alignment to result when looking at the relationship between standards and assessments and therefore for there to be more content in the common core that is unique in relation to state assessments. However, this is not actually the case. On average, 45 percent of the content of the common core is unique when compared to the state grade 5 math assessments. More interestingly, state assessments actually have more unique content covered compared to the common core than do state standards. On average, 26 percent of state assessment content is unique and not included in the common core. Four areas account for just over 10 percent of this unique content: demonstrating an understanding of the mathematical ideas for summarizing data in graphs or tables, demonstrating an understanding of the mathematical ideas for estimation, demonstrating an understanding of the mathematical ideas for adding or subtracting whole numbers or integers, and demonstrating an understanding of the mathematical ideas for adding or subtracting decimals.

In ELAR, there was a moderate proportion of content unique to the common core. In grade 8, 20 percent of the content in the common core was not included in state tests. However, we found that an even larger proportion of content on the state tests in grade 8 was not covered in the common core. On average, 38 percent of the content covered in state tests was unique to them and not covered in the common core. This unique content centered in the Comprehension topic area but was spread across cognitive demand levels. Specific areas of uniqueness include main ideas, key concepts, and sequences of events; narrative elements; word meaning from context; and strategies.

## Conclusions

The common core does represent considerable change from what states currently call for in their standards and what they assess. The common core standards are not, however, more focused as some might have hoped.

Our conclusions are based on the assumption that the content distinctions made by our SEC procedures are important. Within that, a key question is, do we describe content at too crude or too precise a level of detail? If too crude, we have undoubtedly overlooked important additional uniquenesses of the common core from state content standards and assessments. If too precise, some of the uniquenesses we find may not be important. Any definition of content is surely subject to criticism for both possibilities. We take as some assurance of the validity of our distinctions that when SEC procedures are used by teachers to describe the content of their instruction and SEC procedures are used to measure the degree of alignment of that content to assessed content. The degree of alignment is a powerful predictor of gains in student achievement with correlations nearly 0.5 (explaining 25% of the variance). Further, the strength of prediction drops to near zero when topics are collapsed so that one just considers alignment of cognitive demand and similarly when cognitive demand is collapsed and one considers just alignment of topics (Gamoran, Porter, Smithson & White, 1997).

Table 1. Alignment of State and Common Core Math Standards

| | Common Core Standards | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| State Standards | Grade K | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 9-12 |
| State A | | | | | 0.2 | | | | 0.07 | |
| State B | | | | | | | 0.19 | 0.31 | 0.28 | 0.22 |
| State C | | | | 0.3 | 0.21 | 0.16 | 0.16 | 0.15 | 0.22 | |
| State D | | | | | | | | | | 0.12 |
| State E | | | | | | | | | 0.2 | |
| State F | | 0.27 | 0.32 | 0.25 | 0.23 | 0.15 | 0.25 | 0.34 | 0.22 | 0.31 |
| State G | 0.34 | 0.27 | 0.41 | 0.3 | 0.18 | 0.19 | 0.24 | 0.28 | 0.33 | 0.15 |
| State H | 0.23 | 0.27 | 0.23 | 0.24 | 0.19 | 0.17 | 0.2 | 0.21 | 0.23 | |
| State I | 0.42 | 0.29 | 0.33 | 0.22 | 0.21 | 0.21 | 0.27 | 0.17 | 0.3 | 0.37 |
| State J | | | | | 0.15 | | | | 0.23 | |
| State K | | 0.23 | 0.32 | 0.28 | 0.28 | 0.24 | 0.06 | 0.09 | 0.16 | 0.3 |
| State L | | | | | | | | | | 0.23 |
| State M | | | | 0.18 | | 0.22 | 0.19 | 0.3 | 0.3 | 0.32 |
| State N | 0.25 | 0.26 | 0.34 | 0.27 | 0.29 | 0.27 | 0.26 | 0.26 | 0.26 | 0.25 |
| State O | 0.25 | 0.19 | 0.27 | 0.25 | 0.21 | 0.25 | 0.23 | 0.25 | 0.2 | 0.27 |
| State P | | | | | 0.25 | | | | 0.16 | |
| State R | 0.27 | 0.2 | 0.27 | 0.21 | 0.16 | 0.2 | | 0.19 | | 0.31 |
| State S | 0.35 | 0.29 | 0.4 | 0.31 | 0.19 | 0.21 | 0.2 | 0.3 | 0.29 | 0.33 |
| State T | | | | | | | | 0.19 | | 0.24 |
| State U | | | | | 0.17 | | | | 0.14 | 0.11 |
| State V | | | | | | | | | 0.22 | |
| State W | | | | 0.1 | 0.12 | 0.1 | 0.01 | 0.07 | 0.07 | 0.05 |
| State X | | | | | | | 0.17 | | 0.15 | |
| State AA | | 0.3 | 0.38 | 0.32 | 0.3 | 0.26 | 0.25 | 0.22 | 0.26 | 0.32 |
| State AB | 0.51 | 0.28 | 0.44 | 0.41 | 0.27 | 0.24 | 0.21 | 0.33 | 0.29 | 0.26 |
| State AD | 0.15 | 0.19 | 0.21 | 0.24 | 0.17 | 0.21 | 0.21 | 0.22 | 0.21 | 0.19 |
| State AE | | | 0.46 | 0.41 | 0.43 | 0.3 | | | | |
| NCTM | 0.23 | 0.27 | 0.30 | 0.27 | 0.24 | 0.27 | 0.22 | 0.22 | 0.22 | 0.38 |
| Min | 0.15 | 0.19 | 0.21 | 0.10 | 0.12 | 0.10 | 0.01 | 0.07 | 0.07 | 0.05 |
| Max | 0.51 | 0.30 | 0.46 | 0.41 | 0.43 | 0.30 | 0.27 | 0.34 | 0.33 | 0.37 |
| Average | 0.31 | 0.25 | 0.34 | 0.27 | 0.22 | 0.21 | 0.19 | 0.23 | 0.22 | 0.24 |

Table 2. Alignment of State and Common Core ELAR Standards

| | Common Core Standards | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| State Standards | Grade K | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 9/10 | Grade 11/12 |
| State C | | | | | | 0.28 | | | 0.35 | 0.34 | |
| State F | | 0.37 | 0.34 | 0.32 | 0.39 | 0.24 | 0.24 | 0.41 | 0.35 | 0.23 | 0.31 |
| State G | 0.32 | 0.34 | 0.40 | 0.24 | 0.29 | 0.31 | 0.44 | 0.43 | 0.48 | 0.39 | |
| State H | | | 0.19 | 0.16 | 0.14 | 0.17 | 0.22 | 0.23 | 0.25 | | |
| State I | 0.29 | 0.34 | 0.35 | 0.37 | 0.37 | 0.34 | 0.38 | 0.39 | 0.40 | 0.38 | 0.34 |
| State K | | | | 0.20 | 0.29 | 0.30 | | | 0.16 | 0.39 | |
| State L | | | 0.38 | | | 0.26 | | | 0.37 | | |
| State M | | | | 0.11 | 0.10 | 0.15 | 0.14 | 0.15 | 0.11 | 0.18 | 0.18 |
| State N | 0.36 | 0.29 | 0.26 | 0.33 | 0.35 | 0.21 | 0.36 | 0.30 | 0.33 | 0.35 | 0.35 |
| State O | 0.31 | 0.33 | 0.40 | 0.34 | 0.19 | 0.30 | 0.38 | 0.34 | 0.32 | 0.39 | 0.39 |
| State P | | | 0.27 | 0.21 | | | | | | | |
| State Q | | | | | | | 0.37 | | 0.33 | | 0.33 |
| State R | 0.26 | 0.37 | 0.35 | 0.33 | 0.28 | 0.35 | 0.40 | 0.39 | 0.42 | | |
| State S | | | 0.26 | 0.28 | 0.16 | 0.23 | 0.20 | 0.24 | 0.36 | 0.37 | 0.36 |
| State T | | | | | | | 0.29 | 0.13 | 0.33 | | |
| State U | | | | | 0.25 | | | | 0.32 | | 0.38 |
| State W | | | | | 0.23 | | | | 0.19 | | 0.17 |
| State Y | | 0.34 | 0.32 | 0.31 | 0.36 | 0.37 | 0.35 | 0.35 | 0.33 | 0.39 | 0.37 |
| State Z | | | | 0.22 | | 0.22 | | | 0.21 | 0.18 | |
| State AA | | | 0.14 | 0.14 | 0.15 | 0.15 | 0.38 | 0.38 | 0.35 | 0.23 | 0.38 |
| State AB | 0.28 | 0.35 | 0.37 | 0.33 | 0.39 | 0.39 | 0.37 | 0.37 | 0.43 | 0.40 | 0.37 |
| State AC | | | | | 0.22 | 0.26 | 0.22 | 0.22 | 0.23 | 0.31 | 0.31 |
| State AD | 0.31 | 0.31 | 0.32 | 0.31 | 0.32 | 0.32 | 0.40 | 0.40 | 0.41 | 0.39 | 0.36 |
| State AE | 0.31 | 0.35 | 0.34 | 0.30 | 0.30 | | 0.20 | | | | |
| Min | 0.26 | 0.29 | 0.14 | 0.11 | 0.10 | 0.15 | 0.14 | 0.13 | 0.11 | 0.18 | 0.17 |
| Max | 0.36 | 0.37 | 0.40 | 0.37 | 0.39 | 0.39 | 0.44 | 0.43 | 0.48 | 0.40 | 0.39 |
| Mean | 0.30 | 0.34 | 0.31 | 0.26 | 0.26 | 0.27 | 0.31 | 0.32 | 0.32 | 0.33 | 0.33 |

Table 3. Aggregated Alignment between Common Core and State Standards

| State Standards | Math | | ELAR | |
|---|---|---|---|---|
| | Grades 3-6 | Grades 3-8 | Grades 3-6 | Grades 3-8 |
| State C | 0.39 | 0.42 | -- | -- |
| State F | 0.35 | 0.44 | 0.44 | 0.50 |
| State G | 0.38 | 0.44 | 0.44 | 0.50 |
| State H | 0.32 | 0.37 | 0.25 | 0.29 |
| State I | 0.38 | 0.45 | 0.47 | 0.50 |
| State K | 0.36 | 0.37 | -- | -- |
| State M | -- | -- | 0.19 | 0.21 |
| State N | 0.43 | 0.47 | 0.45 | 0.50 |
| State O | 0.34 | 0.40 | 0.41 | 0.48 |
| State R | -- | -- | 0.43 | 0.49 |
| State S | 0.36 | 0.43 | 0.37 | 0.40 |
| State W | -- | -- | -- | -- |
| State Y | 0.15 | 0.19 | 0.42 | 0.42 |
| State AA | 0.47 | 0.51 | 0.28 | 0.34 |
| State AB | 0.41 | 0.46 | 0.45 | 0.49 |
| State AD | 0.30 | 0.38 | 0.40 | 0.43 |
| Min | 0.15 | 0.19 | 0.19 | 0.21 |
| Max | 0.47 | 0.51 | 0.47 | 0.50 |
| Mean | 0.36 | 0.41 | 0.38 | 0.43 |

Table 4. Alignment of State Assessments and Common Core Math Standards

| State Assessments | Common Core Standards | | | | | | |
|---|---|---|---|---|---|---|---|
| | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 9-12 |
| State A | | 0.11 | | | | | |
| State G | 0.17 | 0.21 | 0.21 | 0.21 | 0.17 | 0.29 | 0.17 |
| State H | 0.17 | | | 0.15 | | | 0.16 |
| State I | 0.27 | 0.22 | 0.14 | 0.21 | 0.24 | 0.31 | 0.2 |
| State K | 0.29 | 0.17 | 0.18 | 0.17 | 0.17 | 0.18 | 0.2 |
| State L | | | 0.23 | | | 0.14 | 0.24 |
| State M | | 0.2 | | | | 0.15 | 0.18 |
| State N | 0.14 | 0.28 | 0.19 | 0.19 | 0.3 | 0.21 | 0.15 |
| State O | 0.16 | 0.2 | | | 0.15 | 0.13 | 0.2 |
| State P | | 0.22 | | | | 0.16 | |
| State S | 0.15 | 0.18 | 0.16 | 0.14 | 0.17 | 0.22 | 0.1 |
| State U | | 0.14 | | | | 0.17 | 0.14 |
| State V | | 0.22 | | | | 0.19 | |
| State W | 0.18 | 0.21 | 0.23 | 0.21 | 0.29 | 0.27 | 0.17 |
| State X | | | | 0.18 | | 0.18 | |
| State Y | | | | | | 0.15 | |
| NAEP | | 0.28 | | | | 0.21 | |
| Min | 0.14 | 0.11 | 0.14 | 0.14 | 0.15 | 0.13 | 0.10 |
| Max | 0.29 | 0.28 | 0.23 | 0.21 | 0.30 | 0.31 | 0.24 |
| Average | 0.19 | 0.20 | 0.19 | 0.18 | 0.21 | 0.20 | 0.17 |

Table 5. Alignment of State Assessments and Common Core ELAR Standards

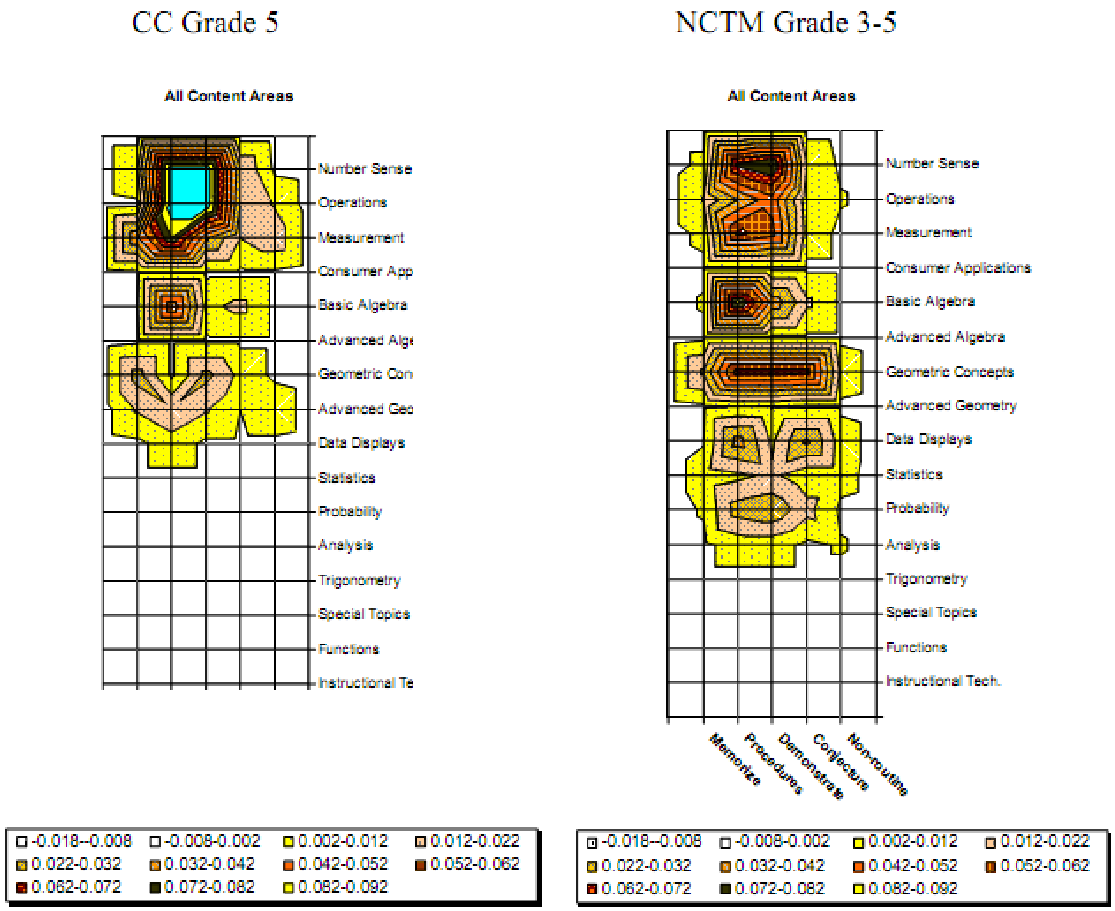
| State Assessments | Common Core Standards | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 9-10 | Grade 11-12 |
| State C | 0.17 | 0.17 | 0.19 | 0.22 | 0.19 | 0.18 | 0.21 | |
| State I | 0.19 | 0.13 | 0.22 | 0.14 | 0.15 | 0.24 | 0.18 | |
| State K | 0.21 | 0.20 | 0.18 | 0.08 | 0.08 | 0.14 | 0.23 | |
| State M | 0.14 | 0.10 | 0.13 | 0.14 | 0.17 | 0.20 | | 0.19 |
| State N | 0.21 | 0.23 | 0.32 | 0.26 | 0.26 | 0.21 | 0.28 | 0.27 |
| State Q | | | | 0.16 | | | | 0.12 |
| State S | 0.18 | 0.15 | 0.11 | 0.07 | 0.16 | 0.07 | 0.14 | 0.13 |
| State U | | 0.16 | | | | 0.11 | 0.10 | |
| State W | | 0.24 | | | | 0.12 | 0.18 | |
| State Y | 0.16 | 0.20 | 0.18 | 0.20 | 0.20 | 0.24 | 0.14 | 0.14 |
| State AB | | | | | | 0.21 | | |
| State AC | | 0.14 | 0.17 | 0.16 | | | | |
| NAEP | | 0.25 | | | | 0.24 | | |
| Min | 0.14 | 0.10 | 0.11 | 0.07 | 0.08 | 0.07 | 0.10 | 0.12 |
| Max | 0.21 | 0.24 | 0.32 | 0.26 | 0.26 | 0.24 | 0.28 | 0.27 |
| Average | 0.18 | 0.17 | 0.19 | 0.16 | 0.17 | 0.17 | 0.18 | 0.17 |

Table 6. Aggregated Alignment between Common Core and State Assessments

| | Math | | ELAR | |
|---|---|---|---|---|
| State Assessments | Grades 3-6 | Grades 3-8 | Grades 3-6 | Grades 3-8 |
| State C | | | 0.23 | 0.24 |
| State G | 0.33 | 0.36 | | |
| State I | 0.33 | 0.40 | 0.28 | 0.30 |
| State K | 0.35 | 0.40 | 0.23 | 0.23 |
| State M | | | 0.17 | 0.22 |
| State N | 0.35 | 0.41 | 0.36 | 0.37 |
| State S | 0.33 | 0.39 | 0.16 | 0.18 |
| State W | 0.37 | 0.43 | | |
| State Y | | | 0.23 | 0.26 |
| Min | 0.33 | 0.36 | 0.16 | 0.18 |
| Max | 0.37 | 0.43 | 0.36 | 0.37 |
| Mean | 0.34 | 0.40 | 0.24 | 0.26 |

Figure 1.Content Map of Alignment of Common Core and NCTM Grade 5 Math Standards

Alignment 0.27



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