

Technical Report # 1229

The Alignment of the easyCBM Grades 3-5

Math Measures to the Common Core Standards

Bitnara Jasmine Park

P. Shawn Irvin

Julie Alonzo

Gerald Tindal

University of Oregon



behavioral research & teaching

Published by

Behavioral Research and Teaching
University of Oregon • 175 Education
5262 University of Oregon • Eugene, OR 97403-5262
Phone: 541-346-3535 • Fax: 541-
346-5689 <http://brt.uoregon.edu>

Note: Funds for this data set used to generate this report come from two federal grants awarded to the UO from the U.S. Department of Education, Institute for Education Sciences: Assessments Aligned with Grade Level Content Standards and Scaled to Reflect Growth for Students with Disabilities R324A70188 funded from 2007-2011. U.S. Department of Education, Institute of Education Sciences: Developing Middle School Mathematics Progress Monitoring Measures R324A100026 funded from June 2012-June 2014. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

Copyright © 2012. Behavioral Research and Teaching. All rights reserved. This publication, or parts thereof, may not be used or reproduced in any manner without written permission.

The University of Oregon is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation. This document is available in alternative formats upon request.

Abstract

Within a response to intervention system of teaching and learning, important instructional decision-making (e.g., implementation of targeted intervention) is regularly tied to the results of formative assessments administered to students throughout the academic year. The validity of these instructional decisions depends to an extent on the alignment between formative measures and the content standards on which classroom instruction is based. Specifically, formative assessments must be aligned to adopted content standards in order for teachers to make valid instructional decisions around individual student learning needs. In this technical report, we report on the alignment between easyCBM[®] grades 3-5 seasonal mathematics benchmark items and the Common Core State Standards (CCSS). Results suggest reasonable alignment to the standards overall, with areas of relatively stronger and weaker alignment across grade level domains and standards. These results serve as the basis for assessment development in school year 2012-2013 to address gaps in alignment between easyCBM[®] and the CCSS.

The Alignment of the easyCBM Grades 3-5 Math Measures to the Common Core State Standards

The Common Core State Standards were introduced in 2010 to provide a unified set of standards to guide instruction and assessment nationwide (National Governors Association Center for Best Practices - Council of Chief State School Officers, 2010). The movement of educators toward the Common Core State Standards (CCSS) is evident. Currently, 47 states and the District of Columbia (also three U.S. territories) have formally adopted the CCSS through one or both of two assessment consortia working with states as they prepare to implement the standards, with the release of associated Common Assessments set for the 2014-2015 academic year for participating states.

The easyCBM[®] mathematics formative assessment system (Alonzo, Tindal, Ulmer, & Glasgow, 2006) is comprised of seasonal benchmark and progress-monitoring assessments in grades K-8. Existing easyCBM[®] mathematics items found in the benchmark and progress monitoring assessments were originally written to align with the National Council of Teachers of Mathematics (NCTM) Curriculum Focal Points. A study by Nese, Lai, Anderson, Park, Tindal, and Alonzo (2010) indicated generally strong alignment across grade level Focal Points and test forms. In the current study, we focus on the alignment between mathematics items on the easyCBM[®] seasonal benchmarking assessments and the CCSS for grades K-8, here reporting results for grades 3-5. Results are intended to serve as a basis for developing new items and assessment measures that will result in moving the easyCBM[®] math measures into closer alignment with the CCSS.

Methods

This study was conducted in two phases. During Phase 1, we worked with one educator per grade on an initial review of easyCBM[®] benchmark math items and their relation to the CCSS. Phase 2 expanded the review to four additional educators per grade.

Participants

Phase 1. In the fall of 2011, one participant in each of grades K-8 was recruited to participate in Phase 1 of the alignment study (see *Study Design* below). A short questionnaire (see Appendix A) was used to gauge the expertise of potential participants in the areas of mathematics teaching and learning and their familiarity with the CCSS. When possible, general education and special education teachers with expertise in mathematics and the CCSS were recruited across grades K-8. Teacher reviewers included three general education teachers, two special education teachers, two teachers who taught both general and special education coursework, and two district-level math specialists. Reviewers had 12.1 years of teaching experience in mathematics on average, ranging from 3-31 years across the nine participants, and were from seven states: Washington (2), Ohio (2), South Carolina, New Jersey, Indiana, Kansas and Arizona. Most reviewers had experience using easyCBM[®] math measures before the study. Each was assigned to review grade-level mathematics items appropriate to his/her expertise and experience.

Phase 2. In January-February 2012, additional teachers recruited to review items in each of grades K-8, participated in Phase 2 of the study (see *Study Design* below). Four reviewers were recruited in each of these nine grades. The same questionnaire used in Phase 1 was used in Phase 2 of the study to gauge reviewer expertise in math and the CCSS. Additionally, when possible, both general education and special education teachers with expertise in mathematics

and the CCSS were recruited to participate at each grade level. Reviewers had a broad range of teaching experience in mathematics including general education, special education, and district-level math coaching experience. The average teaching experience of all 35 reviewers in Phase 2 of the study was 9.97 years ($M = 10.5$ for grades K-2, $M = 10.71$ for grades 3-5, and $M = 8.58$ for grades 6-8). Years of teaching experience ranged from 1-31 years across the 35 reviewers (2-23 years for grades K-2, 3-31 years for grades 3-5, and 1-21 years for grades 6-8). Reviewers participating in Phase 2 also came from a broad geographic range of 17 states: Oregon (6), Washington (4), Ohio (4), Montana (3), Arizona (2), Illinois (1), North Carolina (2), Texas (2), Connecticut (2), and South Carolina, Maryland, Kansas, New Jersey, California, Georgia, Kentucky and Wisconsin, each with one study participant.

As in Phase 1, most teacher participants had used the easyCBM[®] formative assessment system before the study, and they were again assigned to review grade-level mathematics items appropriate to their expertise and experience. All nine participants from Phase 1 also participated in Phase 2. These reviewers were assigned to a neighboring grade so that they did not review the same math items they had reviewed in Phase 1, but also so that they could utilize familiarity with the CCSS gained in the earlier phase of the study. One reviewer, a district math coach in Oregon, reviewed math items for two grades in Phase 2, kindergarten and grade eight.

Item Selection

Included in the study were all items from the three easyCBM[®] seasonal benchmark mathematics assessments in grades K-8. Each of the three seasonal benchmark assessments contains 45 math items, for a total of 135 math items at each grade. Each item alignment review, for both phases of the study, consisted of the 135 math items from the grade-level benchmark assessments.

Study Design

The alignment study was split into two phases, *Phase 1* and *Phase 2*. Phase 1 was designed as a preliminary gauging of alignment of easyCBM® benchmark mathematics items to the CCSS in preparation for more in-depth study of alignment planned for Phase 2 of the research study.

Phase 1. In Phase 1, reviewers were given hard copies of the 135 benchmark items from one grade (K-8) and hard copies of on- and prior-grade CCSS. Prior to gauging item alignment, reviewers were asked to thoroughly review both the math items and the CCSS. Reviewers were then asked to group math items based on the knowledge and skills required of students to complete an item correctly. It was hoped that grouping items would aid in the next step, where reviewers actually gauged the alignment of items to the CCSS.

Reviewers compared groups of items and individual items where appropriate first to on-grade CCSS and then to prior-grade CCSS, noting any items they believed were aligned to these standards in a spreadsheet provided to them. Reviewers in this phase were asked to gauge item alignment to prior-grade CCSS because easyCBM® mathematics items were designed to assess a range of mathematics knowledge and skills, and in particular as a means to assess lower-performing students, including those with disabilities, and evaluate their progress over time (see Alonzo & Tindal, 2009). For this reason, we expected that some math items might not align to on-grade standards but rather to prior-grade CCSS. Additionally, because Phase 1 was designed as a preliminary review of the alignment between benchmark math items and the CCSS, teachers were *not* asked to give a strength of alignment rating for those items they deemed aligned to a standard. Reviewers were also permitted to indicate that a given item aligned to more than one on- and/or prior grade CCSS. Results from Phase 1 informed the design of Phase 2.

Phase 2. There were notable differences in the study design for Phase 2. Four review participants reviewed math items at each grade level in Phase 2. In order to participate in Phase 2, reviewers were required to attend and participate in a 45-minute training webinar between March and April 2012. See Appendix A for a copy of the PowerPoint presentation from the K-2 training webinar. Subsequent to the webinar training, reviewers were required to complete a short, three-item alignment review designed to evaluate each reviewer's proficiency in gauging the alignment of items to the CCSS.

Proficiency evaluation of reviewers and main item reviews for Phase 2 were conducted online using the Distributed Item Review (DIR), a secure web-based system designed to present test items and test forms to experts across a broad geographic region so they can review them for important dimensions of bias, sensitivity, and in the case of this study, alignment to standards. Within the DIR and for the main reviews, items at each grade were organized into two different tracks, front-ordered (1-135) and back-ordered (135-1), based on how they appear on the benchmark assessments. In this manner, items were counterbalanced to diminish order effects.

In each review, reviewers were shown one grade-level benchmark item at a time and asked to gauge its alignment to on- and prior-grade CCSS. When reviewers deemed an item *was not aligned* with on- or prior-grade CCSS, they were prompted to indicate a strength of alignment of 0, and were asked to indicate whether the item assessed a *prerequisite* skill to on-grade mastery. Our reasoning for asking about alignment to prerequisite skills was similar to that for evaluating prior-grade standard alignment. Because items in the easyCBM[®] formative assessment system are designed to sensitively assess and monitor low-performing students, including those with disabilities, certain items might better align to prerequisite skills to on-grade mastery as opposed to an on- or prior-grade standards. If reviewers deemed that an item *was*

aligned to an on- or prior-grade CCSS, they were asked to type the unique CCSS identification code of the aligning standard into a textbox in the DIR. In these cases, reviewers were also asked to indicate a strength of alignment of (1 = *somewhat linked*, or 2 = *direct link*) to the aligning standard.

Data Preparation and Analysis

Data from both Phase 1 and 2 were combined for data cleaning and analysis. Within the CCSS, standards are sometimes broken down into substandards. In our first data cleaning step, such substandards were collapsed into their parent standard; for example, substandards 1.NBT.2a and 1.NBT.2b were collapsed into parent standard 1.NBT.2. Next, two types of errors that we found characteristic to the Phase 2 data were corrected before conducting any analysis. First, if a reviewer chose a standard for a given item but the strength of alignment between the item and the standard was indicated as 0, we deleted the standard given for the item and treated it as an item that was not aligned to any particular CCSS. Second, if a rater did not choose any standard for a given item but the strength of alignment between the item and the standard was indicated as greater than 0, we edited the strength of alignment to 0. On average, approximately three strength ratings were edited to 0 (0.02%) across all grade-level seasonal benchmarks used in the study. We acknowledge that these error checks and resulting editing of data are a conservative approach given that it is likely that many of these errors were the result of raters' unintentional typing mistakes. However, based on the study design, any math item that was identified as being aligned to a standard should have had a strength rating greater than 0, and any item with a strength rating greater than 0 should have been paired with a standard. Thus, we deemed it inappropriate to presume if or where a rater's error had been made, so the data were treated as missing.

After completing data cleaning, first, we counted the frequency of standards chosen for each item. The most frequently provided standard was identified as the “primary standard” for a given item. If there were two competing standards for a given item with no clear majority (e.g. two raters chose one standard and two other two raters chose another standard), then both standards were identified as “primary standards”. Any standard that was not identified as a primary standard, but was identified by at least one rater as being aligned, was listed as a secondary standard. If there was no primary standard for a given item, meaning all raters chose different standards at the same frequency, all standards were listed as secondary standards for that item.

In most cases, a total of five, not always different, standards were provided by raters and used to calculate primary and secondary standards (i.e., one standard provided per item in Phase 1, and four in Phase 2), but because Phase 1 raters were allowed to choose more than one standard for a single item, in a small percentage of cases, 6-7 standards were used in these frequency calculations. In these cases, all standards provided for a given item from both Phase 1 and 2 were considered when identifying primary and secondary standards for a given item. However, in calculating the average strength of alignment rating between a particular standard and item, we only included the strength ratings of the raters from Phase 2 because the raters in Phase 1 were not asked to give strength of alignment ratings. Thus, the total number of standards chosen by raters for a particular item may be different from the number of strength of alignment ratings used to calculate the average strength of alignment for an item. Lastly, for items that one or more reviewer indicated did not align to on- or prior-grade CCSS (a strength of alignment rating of 0) we counted the frequency of reviewers who indicated that the item aligned to a prerequisite skill to on-grade standard mastery.

Results

Alignment results for grades 3-5 are presented below, with results displayed by item in Appendix B and by CCSS standard and domain in Appendix C. It should be noted that table notes associated with each benchmark and item table are extensive and should be read carefully, as they detail the abbreviations used to present alignment results and provide a context for the grade-level results outlined below.

Grade 3

Fall benchmark assessment. Across the five reviewers in Phase 1 and Phase 2 of the study, 32 of 45 math items on the fall benchmark assessment (71%) were linked to *on-grade* (grade 3) CCSS as primary standards, with an average strength of alignment rating of 1.86 across these items (Table 1, Appendix B). There were five items that each had two standards identified as co-primary (PS1 and PS2 in Table 1). Of the 13 items that did not have an *on-grade* standard identified as primary, four items were linked to a *prior-grade* (grade 2) standard that was identified as primary, with an average strength of alignment rating of 1.63 across these items. Eight items were identified as not linked to the CCSS, meaning that the majority of reviewers indicated these items were *not aligned* to either *on- or prior-grade* CCSS. Each of these eight items was identified as having a CCSS linked to them as a secondary standard. While two of the eight items had at least half the reviewers indicate they were aligned to a prerequisite skill necessary for on-grade mastery. In sum, 45 of 45 items on the grade 3 fall benchmark assessment (100%) were rated as aligned to *on- or prior-grade* CCSS by at least one reviewer.

Of the two standards comprising the *Geometry* domain from the *on-grade* (grade 3) CCSS (Tables 1-2, Appendix C), both were linked as primary standards to items on the fall benchmark ($n = 3$ items), and both standards were linked as secondary standards ($n = 16$ items).

easyCBM Math Measures Alignments Grades 3-5

Of the nine standards representing the *Operations and Algebraic Thinking* domain, six were identified as primary standards ($n = 17$ items), and seven standards were linked as secondary standards ($n = 19$ items) to the fall benchmark. Of the three standards comprising the *Numbers and Operations in Base Ten* domain, only one standard was linked as a primary standard to item from the fall benchmark ($n = 1$ item), while none of the standards was linked as secondary standards. Of the three standards representing the *Number and Operations-Fractions* domain, two were identified as primary standards ($n = 14$ items), and two standards were linked as secondary standards ($n = 3$ items). Lastly, of the eight standards comprising the *Measurement and Data* domain, only one standard was identified as a primary standard ($n = 1$ item), and just one of the eight standards was linked to the fall benchmark items as secondary standard ($n = 1$ item).

Of the three standards comprising the *Geometry* domain from the *prior-grade* (grade 2) CCSS (Tables 1-2, Appendix C), only one was linked as a primary standard to items from the fall benchmark ($n = 5$ items), whereas all three standards were linked to items as secondary standards ($n = 9$ items). Of the ten standards representing the *Measurement and Data* domain, none were linked as a primary standard, and only one standard was linked as secondary to the fall benchmark ($n = 1$ item). Of the four standards comprising the *Operations and Algebraic Thinking* domain, none of them was linked as a primary standard, while two were linked as secondary standards ($n = 3$ items). None of the nine standards representing the *Numbers and Operations in Base Ten* domain was linked to any of the fall benchmark items.

Winter benchmark assessment. Across the five reviewers in Phase 1 and Phase 2 of the study, 29 of 45 math items on the winter benchmark assessment (64%) were linked to *on-grade* (grade 3) CCSS as primary standards, with an average strength of alignment rating of 1.96 across

these items (Table 2 Appendix B). There was one item that had two standards identified as co-primary (PS1 and PS2 in Table 2). Of the 16 items that did not have an *on-grade* standard identified as primary, 5 items were linked to a *prior-grade* (grade 2) standard that was identified as primary, with an average strength of alignment rating of 1.75 across these items. Ten items were identified as not linked to the CCSS, meaning that the majority of reviewers indicated these items were *not aligned* to either *on- or prior-grade* CCSS. Eight of these ten items was identified as having a CCSS linked to them as a secondary standard. None of the ten items had at least half the reviewers indicate they were aligned to a prerequisite skill necessary for on-grade mastery. In sum, 43 of 45 items on the grade 3 winter benchmark assessment (96%) were rated as aligned to *on- or prior-grade* CCSS by at least one reviewer.

Of the two standards comprising the *Geometry* domain from the *on-grade* (grade 3) CCSS (Tables 3-4, Appendix C), neither were linked as primary standards to items on the winter benchmark, and only one standard was linked as a secondary standard ($n = 9$ items). Of the nine standards representing the *Operations and Algebraic Thinking* domain, seven were identified as primary standards ($n = 14$ items), and seven standards were linked as secondary standards ($n = 22$ items) to the winter benchmark. Of the three standards comprising the *Numbers and Operations in Base Ten* domain, none of the standards were linked as either primary or secondary standards to items on the winter benchmark. Of the three standards representing the *Number and Operations-Fractions* domain, two were identified as primary standards ($n = 14$ items), and three standards were linked as secondary ($n = 8$ items). Lastly, of the eight standards comprising the *Measurement and Data* domain, only two were identified as primary standards ($n = 2$ items), while none of eight standards was linked to the winter benchmark items as secondary standard.

Of the three standards comprising the *Geometry* domain from the *prior-grade* (grade 2) CCSS (Tables 3-4, Appendix C), only one was linked as a primary standard to items from the winter benchmark ($n = 5$ items). All three standards were linked to items as secondary ($n = 11$ items). Of the ten standards representing the *Measurement and Data* domain, none of them was linked as a primary standard, and only one standard was linked as a secondary standard to the winter benchmark ($n = 1$ item). Of the four standards comprising the *Operations and Algebraic Thinking* domain, none were linked as primary or secondary standards. Lastly, none of the nine standards representing the *Numbers and Operations in Base Ten* domain were linked to any of the winter benchmark items.

Spring benchmark assessment. Across the five reviewers in Phase 1 and Phase 2 of the study, 30 of 45 math items on the spring benchmark assessment (67%) were linked to *on-grade* (grade 3) CCSS as primary standards, with an average strength of alignment rating of 1.88 across these items (Table 3, Appendix B). There were three items that each had two standards identified as co-primary (PS1 and PS2 in Table 3). Of the 15 items that did not have an *on-grade* standard identified as primary, four items were linked to a *prior-grade* (grade 2) standards that were identified as primary, with an average strength of alignment rating of 2.0 across these items. Eleven items were identified as not linked to the CCSS, meaning that the majority of reviewers indicated these items were *not aligned* to either *on- or prior-grade* CCSS. Ten of these eleven items were identified as having a CCSS linked to them as a secondary standard, while just one of the eleven items had at least half the reviewers indicate they were aligned to a prerequisite skill necessary for on-grade mastery. All reviewers indicated five of these eleven items did not address a prerequisite skill. In sum, 44 of 45 items on the grade 3 spring

benchmark assessment (98%) were rated as aligned to *on- or prior-grade* CCSS by at least one reviewer.

Of the two standards comprising the *Geometry* domain from the *on-grade* (grade 3) CCSS (Tables 5-6, Appendix C), one was linked as a primary standard to the spring benchmark ($n = 1$ item), and both standards were linked as secondary ($n = 19$ items).

Of the nine standards representing the *Operations and Algebraic Thinking* domain, six were identified as primary standards ($n = 14$ items), and eight standards were linked as secondary ($n = 19$ items) to the spring benchmark. None of the three standards comprising the *Numbers and Operations in Base Ten* domain were linked as either primary or secondary standard to items from the spring benchmark. All three of the standards representing the *Number and Operations-Fractions* domain were identified as primary standards ($n = 17$ items) and secondary standards ($n = 6$ items) to items on the spring benchmark. Lastly, of the eight standards comprising the *Measurement and Data* domain, only one was identified as a primary standard ($n = 1$ item), while none of eight standards were linked to spring benchmark items as secondary standard.

Of the three standards comprising the *Geometry* domain from the *prior-grade* (grade 2) CCSS (Tables 5-6, Appendix C), two were linked as primary standards to items from the spring benchmark ($n = 4$ items), and two were linked to items as secondary standards ($n = 8$ items). Of the ten standards representing the *Measurement and Data* domain, none were linked as primary or secondary standards. None of the four standards comprising the *Operations and Algebraic Thinking* domain were linked as primary or secondary standards to the spring benchmark. Lastly, none of the nine standards representing the *Numbers and Operations in Base Ten* domain was linked to any spring benchmark items.

Grade 4

Fall benchmark assessment. Across the five reviewers in Phase 1 and Phase 2 of the study, 21 of 45 math items on the fall benchmark assessment (47%) were linked to *on-grade* (grade 4) CCSS as primary standards, with an average strength of alignment rating of 1.60 across these items (Table 4, Appendix B). Eighteen items were linked to a *prior-grade* (grade 3) standard that was identified as primary, with an average strength of alignment rating of 1.79 across these items. There were four items that were linked to both *on-* and *prior-grade* standards that were identified as primary (PS1 and PS2 in Table 4). Eight items were identified as not linked to the CCSS, meaning that the majority of reviewers indicated these items were *not aligned* to either *on- or prior-grade* CCSS. Each of these eight items was identified as having a CCSS linked to them as a secondary standard, and seven had at least half the reviewers indicate that they were aligned to a prerequisite skill necessary for on-grade mastery. In sum, 45 of 45 items on the grade 4 fall benchmark assessment (100%) were rated as aligned to *on- or prior-grade* CCSS by at least one reviewer.

Of the three standards comprising the *Geometry* domain from the *on-grade* (grade 4) CCSS (Tables 7-8, Appendix C), none were linked as primary or secondary standards to items on the fall benchmark. Of the five standards representing the *Operations and Algebraic Thinking* domain, two were identified as primary standards ($n = 2$ items), and four standards were linked as secondary standards ($n = 10$ items) to the fall benchmark. Of the six standards comprising the *Numbers and Operations in Base Ten* domain, only one was linked as a primary standard to items from the fall benchmark ($n = 3$ items), while three were linked as secondary standards ($n = 3$ items). Of the seven standards representing the *Number and Operations-Fractions* domain, four were identified as primary standards ($n = 5$ items), and three standards were linked as secondary standards ($n = 8$ items). Lastly, of the seven standards comprising the *Measurement*

and Data domain, two standards were identified as primary standards ($n = 11$ items), and four standards were linked to the fall benchmark as secondary standards ($n = 12$ items).

Of the two standards comprising the *Geometry* domain from the *prior-grade* (grade 3) CCSS (Tables 7-8, Appendix C), none were linked as a primary standard to items from the fall benchmark, while both standards were linked to items as secondary ($n = 5$ items). Of the nine standards representing the *Operations and Algebraic Thinking* domain, two were identified as primary standards ($n = 4$ items), and five were linked as secondary standards ($n = 9$ items) to the fall benchmark. Of the three standards comprising the *Numbers and Operations in Base Ten* domain, only one was linked as a primary standard ($n = 1$ item), and one was identified as secondary ($n = 1$ item). Of the three standards representing the *Number and Operations-Fractions* domain, two were identified as primary standards ($n = 2$ items), and two standards were linked as secondary standards ($n = 3$ items). Lastly, of the eight standards comprising the *Measurement and Data* domain, four were identified as primary standards ($n = 11$ items), and four were linked to the fall benchmark items as secondary standards ($n = 9$ items).

Winter benchmark assessment. Across the five reviewers in Phase 1 and Phase 2 of the study, 25 of 45 math items on the winter benchmark assessment (56%) were linked to *on-grade* (grade 4) CCSS as primary standards, with an average strength of alignment rating of 1.79 across these items (Table 5, Appendix B). Thirteen items were linked to a *prior-grade* (grade 3) standard that was identified as primary, with an average strength of alignment rating of 1.58 across these items. There was one item that was linked to both *on-* and *prior-grade* standards that were identified as primary (PS1 and PS2 in Table 5). Four items were identified as not linked to the CCSS, meaning that the majority of reviewers indicated these items were *not aligned* to either *on- or prior-grade* CCSS. Each of these four items were identified as having a

easyCBM Math Measures Alignments Grades 3-5

CCSS linked to them as a secondary standard. Three of the four items had at least half the reviewers indicate they were aligned to a prerequisite skill necessary for *on-grade* mastery. In sum, 45 of 45 items on the grade 4 winter benchmark assessment (100%) were rated as aligned to *on- or prior-grade* CCSS by at least one reviewer.

Of the three standards comprising the *Geometry* domain from the *on-grade* (grade 4) CCSS (Tables 9-10, Appendix C), none were linked as primary or secondary standards to items on the winter benchmark. Of the five standards representing the *Operations and Algebraic Thinking* domain, one was identified as a primary standard ($n = 1$ item), and two were linked as secondary standards ($n = 7$ items) to the winter benchmark. Of the six standards comprising the *Numbers and Operations in Base Ten* domain, three were linked as primary standards to items from the winter benchmark ($n = 8$ items), and two were linked as secondary standards ($n = 3$ items). Of the seven standards representing the *Number and Operations-Fractions* domain, two were identified as primary standards ($n = 7$ items), and two were linked as secondary standards ($n = 5$ items) to items on the winter benchmark. Lastly, of the seven standards comprising the *Measurement and Data* domain, two were identified as primary standards ($n = 9$ items), and two were linked to winter benchmark items as secondary standards ($n = 6$ items).

Of the two standards comprising the *Geometry* domain from the *prior-grade* (grade 3) CCSS (Tables 9-10, Appendix C), none were linked as a primary standard to items from the winter benchmark, while both standards were linked to items as secondary standards ($n = 5$ items). Of the nine standards representing the *Operations and Algebraic Thinking* domain, one was identified as a primary standard ($n = 1$ item), and one was linked as secondary standard ($n = 1$ item) to items on the winter benchmark. None of the three standards comprising the *Numbers and Operations in Base Ten* domain were linked as a primary standard to items on the winter

benchmark, while two were identified as secondary ($n = 2$ items). Of the three standards representing the *Number and Operations-Fractions* domain, one was identified as a primary standard ($n = 1$ item), and one was linked as a secondary standard ($n = 3$ items). Lastly, of the eight standards comprising the *Measurement and Data* domain, four standards were identified as primary standards ($n = 11$ items), and six standards were linked to winter benchmark items as secondary standards ($n = 16$ items).

Spring benchmark assessment. Across the five reviewers in Phase 1 and Phase 2 of the study, 21 of 45 math items on the spring benchmark (47%) were linked to *on-grade* (grade 4) CCSS as primary standards, with an average strength of alignment rating of 1.53 across these items (Table 6, Appendix B). Seventeen items were linked to a *prior-grade* (grade 3) standard that was identified as primary, with an average strength of alignment rating of 1.67 across these items. There was one item that was linked to *on-* and *prior-grade* standards that were identified as primary (PS1 and PS2 in Table 6). Three items were identified as not linked to the CCSS, meaning that the majority of reviewers indicated these items were *not aligned* to either *on-* or *prior-grade* CCSS. Each of these three items was identified as having a CCSS linked to them as a secondary standard. All three items had at least half the reviewers indicate they were aligned to a prerequisite skill necessary for *on-grade* mastery. In sum, 45 of 45 items on the grade 4 spring benchmark assessment (100%) were rated as aligned to *on-* or *prior-grade* CCSS by at least one reviewer.

Of the three standards comprising the *Geometry* domain from the *on-grade* (grade 4) CCSS (Tables 11-12, Appendix C), none were linked as a primary standard, while one was linked as a secondary standard to items on the spring benchmark ($n = 1$ item). Of the five standards representing the *Operations and Algebraic Thinking* domain, one was identified as a

primary standard ($n = 4$ items), and four were linked as secondary standards ($n = 7$ items) to items on the spring benchmark. Of the six standards comprising the *Numbers and Operations in Base Ten* domain, only one was linked as a primary standard to items from the spring benchmark ($n = 3$ items), while three were linked as secondary standards ($n = 6$ items). Of the seven standards representing the *Number and Operations-Fractions* domain, two were identified as primary standards ($n = 6$ items), and four standards were linked as secondary standards ($n = 8$ items) to items on the spring benchmark. Lastly, of the seven standards comprising the *Measurement and Data* domain, two were identified as primary standards ($n = 8$ items), and three were linked to the spring benchmark items as secondary standards ($n = 15$ items).

Of the two standards comprising the *Geometry* domain from the *prior-grade* (grade 3) CCSS (Tables 11-12, Appendix C), none were linked as primary or secondary standards to items from the spring benchmark. Of the nine standards representing the *Operations and Algebraic Thinking* domain, two were identified as primary standards ($n = 4$ items), and two were linked as secondary standards ($n = 2$ items) to items on the spring benchmark. Of the three standards comprising the *Numbers and Operations in Base Ten* domain, only one was linked as a primary standard ($n = 1$ item), and just one was identified as secondary ($n = 2$ items). Of the three standards representing the *Number and Operations-Fractions* domain, one was identified as a primary standard ($n = 1$ item), and two were linked as secondary standards ($n = 2$ items). Lastly, four of the eight standards comprising the *Measurement and Data* domain were identified as primary standards ($n = 11$ items), and three were linked to items on the winter benchmark as secondary standards ($n = 5$ items).

Grade 5

Fall benchmark assessment. Across the five reviewers in Phase 1 and Phase 2 of the study, 20 of 45 math items on the fall benchmark assessment (44%) were linked to *on-grade* (grade 5) CCSS as primary standards, with an average strength of alignment rating of 1.67 across these items (Table 7, Appendix B). Of the 25 items that did not have an *on-grade* standard identified as primary, nine were linked to a *prior-grade* (grade 4) standard that was identified as primary, with an average strength of alignment rating of 1.85 across these items. Sixteen items were identified as not linked to the CCSS, meaning that the majority of reviewers indicated these items were *not aligned* to either *on- or prior-grade* CCSS. Fourteen of these 16 items were identified as having a CCSS linked to them as a secondary standard. Eleven of the 16 items had at least half the reviewers indicate they were aligned to a prerequisite skill necessary for *on-grade* mastery, while all reviewers indicated that just one of these 16 items did not address a prerequisite skill necessary for on-grade mastery. In sum, 43 of 45 items on the grade 5 fall benchmark assessment (96%) were rated as aligned to *on- or prior-grade* CCSS by at least one reviewer.

Of the four standards comprising the *Geometry* domain from the *on-grade* (grade 5) CCSS (Tables 13-14, Appendix C), none were linked as primary or secondary standards to items on the fall benchmark. None of the three standards representing the *Operations and Algebraic Thinking* domain were linked as primary or secondary standards to items on the fall benchmark. Of the seven standards comprising the *Numbers and Operations in Base Ten* domain, two standards were linked as primary standards to item from the fall benchmark ($n = 9$ items), and four standards were linked as secondary standards ($n = 18$ items). Of the seven standards representing the *Number and Operations-Fractions* domain, three were identified as primary standards ($n = 5$ items), and four standards were linked as secondary standards ($n = 7$ items).

Lastly, of the five standards comprising the *Measurement and Data* domain, two were identified as primary standards ($n = 6$ items), and three were linked to fall benchmark items as secondary standards ($n = 7$ items).

Of the three standards comprising the *Geometry* domain from the *prior-grade* (grade 4) CCSS (Tables 13-14, Appendix C), none were linked as either primary, while one standard was linked as a secondary standard to an item on the fall benchmark. None of the five standards representing the *Operations and Algebraic Thinking* domain were identified as primary standards, while one standard was linked as a secondary standard ($n = 1$ item) to the fall benchmark. Of the six standards comprising the *Numbers and Operations in Base Ten* domain, only one was linked as a primary standard to items from the fall benchmark ($n = 3$ items), while four were linked as secondary standards ($n = 7$ items). Of the seven standards representing the *Number and Operations-Fractions* domain, two were identified as primary standards ($n = 3$ items), and three were linked as secondary standards ($n = 4$ items) to items on the fall benchmark. Lastly, of the seven standards comprising the *Measurement and Data* domain, only one standard was identified as a primary standard ($n = 3$ items), and two standards were linked to fall benchmark items as secondary standards ($n = 3$ items).

Winter benchmark assessment. Across the five reviewers in Phase 1 and Phase 2 of the study, 22 of 45 math items on the winter benchmark assessment (49%) were linked to *on-grade* (grade 5) CCSS as primary standards, with an average strength of alignment rating of 1.71 across these items (Table 8, Appendix B). Twelve items were linked to a *prior-grade* (grade 4) standard that was identified as primary, with an average strength of alignment rating of 1.63 across these items. There were three items that were linked to both *on-* and *prior-grade* standards that were identified as primary (PS1 and PS2 in Table 8). Fourteen items were

easyCBM Math Measures Alignments Grades 3-5

identified as not linked to the CCSS, meaning that the majority of reviewers indicated these items were *not aligned* to either *on- or prior-grade* CCSS. Thirteen of these 14 items were identified as having a CCSS linked to them as a secondary standard. Seven of these 14 items had at least half the reviewers indicate they were aligned to a prerequisite skill necessary for *on-grade* mastery, while all reviewers indicated that just one of one of these 14 items did not address a prerequisite skill necessary for on-grade mastery. In sum, 44 of 45 items on the grade 5 winter benchmark assessment (98%) were rated as aligned to *on- or prior-grade* CCSS by at least one reviewer.

Of the four standards comprising the *Geometry* domain from the *on-grade* (grade 5) CCSS (Tables 15-16, Appendix C), none were linked as primary or secondary standards to items on the winter benchmark. None of the three standards representing the *Operations and Algebraic Thinking* domain were identified as primary standards, while one was linked as a secondary standard ($n = 1$ item) to the winter benchmark. Of the seven standards comprising the *Numbers and Operations in Base Ten* domain, two were linked as primary standards to items from the winter benchmark ($n = 7$ items), while five were linked as secondary standards ($n = 18$ items). Of the seven standards representing the *Number and Operations-Fractions* domain, three were identified as primary standards ($n = 5$ items), and two were linked as secondary standards ($n = 2$ items) to items on the winter benchmark. Lastly, of the five standards comprising the *Measurement and Data* domain, three were identified as primary standards ($n = 10$ items), and three were linked to winter benchmark items as secondary standards ($n = 10$ items).

Of the three standards comprising the *Geometry* domain from the *prior-grade* (grade 4) CCSS (Tables 15-16, Appendix C), none were linked as primary or secondary standards to items on the winter benchmark. None of the five standards representing the *Operations and Algebraic*

Thinking domain were linked as primary or secondary standards to items on the winter benchmark. Of the six standards comprising the *Numbers and Operations in Base Ten* domain, only one was linked as a primary standard to items from the winter benchmark ($n = 5$ items), while three were linked as secondary standards ($n = 7$ items). Of the seven standards representing the *Number and Operations-Fractions* domain, four were identified as primary standards ($n = 6$ items), and three standards were linked as secondary ($n = 6$ items). Lastly, of the seven standards comprising the *Measurement and Data* domain, only one was identified as a primary standard ($n = 1$ item), and just one standard was linked to the winter benchmark items as a secondary standard ($n = 1$ item).

Spring benchmark assessment. Across the five reviewers in Phase 1 and Phase 2 of the study, 31 of 45 math items on the spring benchmark assessment (69%) were linked to *on-grade* (grade 5) CCSS as primary standards, with an average strength of alignment rating of 1.68 across these items (Table 9, Appendix B). Six items were linked to a *prior-grade* (grade 4) standard that was identified as primary, with an average strength of alignment rating of 1.92 across these items. There were seven items that were linked to both *on-* and *prior-grade* standards that were identified as primary (PS1 and PS2 in Table 9). Fourteen items were identified as not linked to the CCSS, meaning that the majority of reviewers indicated these items were *not aligned* to either *on-* or *prior-grade* CCSS. Each of these 14 items was identified as having a CCSS linked to them as a secondary standard. Twelve of these 14 items had at least half the reviewers indicate they were aligned to a prerequisite skill necessary for *on-grade* mastery, while all reviewers indicated that just one of one of these 14 items did not address a prerequisite skill necessary for on-grade mastery. In sum, 43 of 45 items on the grade 5 spring benchmark assessment (96%) were rated as aligned to *on-* or *prior-grade* CCSS by at least one reviewer.

Of the four standards comprising the *Geometry* domain from the *on-grade* (grade 5) CCSS (Tables 17-18, Appendix C), none were linked as primary or secondary standards to items on the spring benchmark. None of the three standards representing the *Operations and Algebraic Thinking* domain were identified as primary standards, while one standard was linked as a secondary standard ($n = 1$ item) to the spring benchmark. Of the seven standards comprising the *Numbers and Operations in Base Ten* domain, three were linked as primary standards to items from the spring benchmark ($n = 11$ items), while five were linked as secondary standards ($n = 11$ items). Of the seven standards representing the *Number and Operations-Fractions* domain, only one was identified as a primary standard ($n = 8$ items), while five were linked as secondary standards ($n = 7$ items). Lastly, of the five standards comprising the *Measurement and Data* domain, two were identified as primary standards ($n = 3$ items), and three were linked to spring benchmark items as secondary standards ($n = 13$ items).

Of the three standards comprising the *Geometry* domain from the *prior-grade* (grade 4) CCSS (Tables 17-18, Appendix C), none were linked as primary or secondary standards to items on the spring benchmark. None of the five standards representing the *Operations and Algebraic Thinking* domain were linked as primary or secondary standards to the spring benchmark. Of the six standards comprising the *Numbers and Operations in Base Ten* domain, only one standard was linked as a primary standard to items from the spring benchmark ($n = 4$ items), and three were linked as secondary standards ($n = 10$ items). Of the seven standards representing the *Number and Operations-Fractions* domain, none were linked as primary standards to items on the spring benchmark, while two were linked as secondary ($n = 11$ items). Lastly, of the seven standards comprising the *Measurement and Data* domain, one was identified as a primary

standard ($n = 2$ items), and this same standard was linked to spring benchmark items as a secondary standard ($n = 2$ items).

Discussion

Alignment of items from the grade 3-5 easyCBM[®] benchmark assessments to the CCSS appears fairly strong given that the items were originally written to the NCTM Curriculum Focal Points, though gaps in alignment are present.

Grade 3

Alignment of the third grade easyCBM[®] benchmark assessments to the CCSS appears stronger *on-grade* compared to *prior-grade* (Tables 1-6, Appendix C). For example, though representation varies between the three grade-level assessments, all five on-grade (grade 3) CCSS domains are linked to items from the benchmarks, while the *Numbers and Operations in Base Ten* from the prior-grade (grade 2) CCSS do not link to any items on the grade 3 benchmarks, and *Operations and Algebraic Thinking* and *Measurement and Data* domains link to only four items (out of a possible 135) across the benchmarks. Given that these assessments are intended to assess and monitor the growth of low performing students, addressing prior-grade domains and standards may warrant further consideration. Of the five *on-grade* domains, *Numbers and Operations in Base Ten* and *Measurement and Data* appear the most underrepresented on the grade 3 benchmark assessments, having only one of the three and three of eight standards aligned as a primary or secondary to items, respectively.

Alignment at the domain level for the third grade assessments appears stronger than at the standard level for *on-grade* CCSS for at least one domain. For instance, though the *Number and Operations-Fractions* domain appears well-represented across the three grade 3 assessments, one of the three standards in this domain, 3.NF.2 is identified as primary standards only once (on the

soring benchmark). Additional on-grade standards that seem underrepresented include: 3.NBT.1, 3.NBT.2, 3.NBT.3, 3.OA.6, 3.OA.8, 3.MD.1-3.MD.8, and 3.G.1. At least two on-grade standards, 3.NF.1 and 3.G.2, appear overrepresented across the third grade assessments based on the with which they were identified as aligned. Assessment development at the grade 3 level will primarily focus on adding additional items to address the following third grade CCSS: *Operations and Algebraic Thinking* Standards 6 and 8, *Numbers and Operations in Base Ten* Standards 1-3, *Number and Operations-Fractions* Standard 2, *Measurement and Data* Standards 1-8, and *Geometry* Standard 1.

Grade 4

Alignment of the fourth grade easyCBM[®] benchmark assessments to the CCSS appears reasonable for both *on- and prior-grade* CCSS though gaps in alignment are present (Tables 7-12, Appendix C). Standards from all five *on-grade* (grade 4) and all five *prior-grade* (grade 3) CCSS domains are linked to items from the benchmark assessments both as primary and secondary, though some domains appear underrepresented. For example, the *on-grade Geometry* domain is addressed by only one item from the spring benchmark, while the *prior-grade Geometry* domain is linked to just five items, all on the fall benchmark, while, thus, the domain appears. The other four *on-grade* domains appear to be reasonably represented, whereas two *prior-grade* domains, *Numbers and Operations in Base Ten* and *Number and Operations-Fractions* seem underrepresented. Given that these assessments are intended to assess and monitor the growth of low performing students, addressing prior-grade domains and standards more thoroughly and evenly may warrant further consideration. While some *on-grade* domains seem underrepresented, at least one domain, *Measurement and Data*, is likely overrepresented,

easyCBM Math Measures Alignments Grades 3-5

with more than 60 items linked to standards in this domain across the grade 4 benchmark assessments.

Alignment at the domain level for the fourth grade assessments appears stronger than at the standard level for some CCSS domains. For instance, although *Numbers and Operations in Base Ten* appears well-represented at the *on-grade* domain level, several standards within this domain seem underrepresented including 4.NBT.1, 4.NBT.3, 4.NBT.4, and 4.NBT.6. Additional on-grade standards that appear underrepresented across the grade 4 benchmarks include: 4.OA.1, 4.OA.4, 4.NF.1, 4.NF.2, 4.NF.3, 4.NF.4, 4.NF.5, 4.MD.1, 4.MD.4, 4.MD.5, 4.MD.6, 4.MD.7, 4.G.1, 4.G.2, and 4.G.3. At least two *on-grade* standards, 4.NF.6 and 4.MD.2 appear overrepresented. Assessment development at the grade 4 level will primarily focus on adding additional items to address the following fourth grade CCSS: *Operations and Algebraic Thinking* Standards 1 and 4, *Numbers and Operations in Base Ten* Standards 1, 3-4 and 6, *Number and Operations-Fractions* Standards 1-5, *Measurement and Data* Standards 1 and 4-7, and *Geometry* Standards 1-3.

Grade 5

Alignment of the fifth grade easyCBM[®] benchmark assessments to the *on- and prior-grade* CCSS appears reasonable though gaps in alignment are present (Tables 13-18, Appendix C). Standards from four of the five *on-grade* (grade 5) CCSS domains are linked to items from the benchmark assessments, though the *Geometry* domain is not aligned to any items on the grade 5 benchmarks, and the *Operations and Algebraic Thinking* domain was aligned to just two items, one on each of the winter and spring assessments; thus, these two *on-grade* domains appears underrepresented. The same two domains for *prior-grade* CCSS are also underrepresented, aligning to only one item each across the three benchmarks. Given that these

easyCBM Math Measures Alignments Grades 3-5

assessments are intended to assess and monitor the growth of low performing students, addressing prior-grade domains and standards more thoroughly and evenly may warrant further consideration. While some domains seem underrepresented, at least one domain, *Number and Operations in Base Ten* appears highly overrepresented with more than 70 items linked to standards in this domain as either primary or secondary, across the grade 5 assessments.

Alignment at the domain level for the fifth grade assessments appears stronger than at the standard level for some CCSS domains. For instance, although *Numbers and Operations-Fractions* appears well-represented at the *on-grade* domain level, several standards within this domain seem underrepresented including 5.NF.3, 5.NF.4, 5.NF.5, 5.NF.6, and 5.NF.7. Additional on-grade standards that appear underrepresented across the grade 5 benchmarks include: 5.OA.1, 5.OA.2, 5.OA.3, 5.NBT.1, 5.NBT.2, 5.NBT.3, 5.NBT.5, 5.MD.1, 5.MD.2, 5.G.1, 5.G.2, 5.G.3 and 5.G.4. At least three *on-grade* standards, 5.NBT.6, 5.NBT.7 and 5.MD.3 appear overrepresented. Assessment development at the grade 5 level will primarily focus on adding additional items to address the following fifth grade CCSS: *Operations and Algebraic Thinking* Standards 1-3, *Numbers and Operations in Base Ten* Standards 1-3 and 5, *Number and Operations-Fractions* Standards 3-7, *Measurement and Data* Standards 1-2, and *Geometry* Standards 1-4.

Conclusion

The results presented in this technical report yield a picture of overall alignment of the grades 3-5 easyCBM[®] benchmark assessments in mathematics to the CCSS at both the domain and standard levels, while also identifying patterns to use as a basis for developing new math items designed to address the current gaps in CCSS alignment. Overall, a fairly stable pattern holds true across all three grades, with approximately 98% of third-grade items, 100% of fourth-

grade items, and 97% of fifth grade items aligned to either *on-grade* or *prior-grade* CCSS. This overall strong pattern of alignment, however, is not without areas of concern. In particular, results of this study suggest that some standards within CCSS are overrepresented on the existing easyCBM[®] assessments, while others are underrepresented.

Results of this study provide clear guidance into areas within the CCSS for which the current easyCBM[®] assessments are insufficiently aligned. Not surprisingly, these gaps between the easyCBM[®] assessments and the CCSS are reflective of the gaps between the CCSS and the NCTM Focal Point Standards, on which the easyCBM[®] assessments were based. Assessment development within the easyCBM[®] system for School Year 2012-2013 will focus on writing additional mathematics items addressing the CCSS that are currently underrepresented within the measures.

References

- Alonzo, J., & Tindal, G. (2009). The development of K-8 progress monitoring measures in mathematics for use with the 2% and general education populations: Kindergarten (Technical Report No. 0921). Eugene, OR: Behavioral Research and Teaching, University of Oregon.
- Alonzo, J., Tindal, G., Ulmer, K., & Glasgow, A. (2006). easyCBM online progress monitoring assessment system.
- National Governors Association Center for Best Practices - Council of Chief State School Officers. (2010). *Common Core State Standards*. National Governors Association Center for Best Practices and Council of Chief State School Officers, Washington D.C.
- Nese, J. F. T., Lai, C. F., Anderson, D., Park, B. J., Tindal, G., & Alonzo, J. (2010). The Alignment of easyCBM Math Measures to Curriculum Standards (Technical Report No. 1002). Eugene, OR: Behavioral Research and Teaching, University of Oregon.

Appendix A

easyCBM Math Measures Alignment Questionnaire
Behavioral Research and Teaching
<http://www.brtprojects.org/>



Greetings! I am writing to you because through a link on the easycbm.com website, you have expressed interest in participating in an alignment study of easyCBM math measures to the Common Core State Standards (CCSS). Before the study begins, you will need to provide answers to some questions to confirm that you meet the requirements to participate.

As a reminder, you can view the study details at: <http://www.brtprojects.org/about/current-research-project?id=10>

Please answer the following questions designed to gauge potential participant expertise in alignment studies of K-8 mathematics measures to the CCSS. You may type your answers directly in this document or in an email reply.

1. Detail the following information regarding your expertise in the area of standards-based mathematics curriculum and instruction:
 - a. District/School/City, State –
 - b. Current position title/grade –
 - c. Years teaching in this position –
 - d. Degree(s) earned –
 - e. Familiarity with Common Core State Standards -
 - f. Other relevant background in mathematics standards-based curriculum/instruction –
2. Indicate the grades (K-8) for which you feel strongly qualified to rate the alignment of mathematics assessments to the CCSS.
3. Are you available for a 45-minute webinar in early Spring?
4. In addition to the webinar, are you able to dedicate 3 hours per grade to complete the alignment study? For example, if you are qualified to rate alignment for grades 3 and 4, you would spend up to 6 hours, 3 hours per grade, completing each review.

Thank you for your interest.

P. Shawn Irvin - pirvin@uoregon.edu
Research Assistant BRT

easyCBM[®] Math Measures Alignment Study

Project Manager
P. Shawn Irvin
Behavioral Research and Teaching, University of Oregon



Study Purpose and Context

- Common Core State Standards (CCSS) provide unified expectations for developing math skills in grades K-12.
- Will be officially put into practice by most states in 2014 – many districts are preparing now
- ➔ Understanding the alignment of easyCBM[®] math measures to the CCSS is critical for strengthening alignment as a basis for valid score interpretation and instructional decision-making

Three Parts to the Study

1. easyCBM® K-8 Math Items
2. The Common Core State Standards
3. The Distributed Item Review (DIR) Website

easyCBM® K-8 Math Items

- Written to NCTM focal point standards
- 3 benchmark tests in each grade, 45 items each, administered in fall, winter and spring
- Identify low-performing students as an impetus for progress monitoring and intervention (i.e., RTI)
- Widespread access and use → over 220,000 teachers and over two million students!

<http://www.brtpjects.org/>

Common Core State Standards

"I ask every American to commit to at least one year or more of higher education or career training. This can be community college or a four-year school; vocational training or an apprenticeship. But whatever the training may be, every American will need to get more than a high school diploma." - President Obama, Address to Joint Session of Congress, February 24, 2009

- College and Career Readiness Movement
- Teacher/state-led effort to establish shared math standards across grades K-12
- 45 states have adopted
- Curricula and assessments coming

<http://www.corestandards.org/>

Distributed Item Review (DIR)

A web-based system for presenting **test items** to **experts** across a **broad geographic region** so they can **review** them for important dimensions of **bias, sensitivity, and alignment with standards**.

Your Role in the Study

1. Complete a short, 3-item proficiency training DIR Review
2. Using the DIR, complete main review to determine the alignment of 135 grade-level easyCBM® math items to:
 - **On**-grade CCSS
or
 - **Prior**-grade CCSS
or
 - **Essential skills** necessary for on-grade standard mastery

Step One: Review and Become Familiar with On- *and* Prior-grade CCSS Relevant to Your Items

e.g., Grade 2 Items – Review Grade 2 *and* Grade 1 CCSS

CCSS Organization

Number and Operations in Base Ten 3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
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. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

Domain → Cluster → Standards

Unique ID for each standard within each domain and grade

e.g., 3.NBT.1, 3.NBT.2, ...

CCSS Resources

Distributed Item Review
UO Behavioral Research and Teaching

Logged in: pirvin | Log out | Home

CONTACT REQUIREMENTS ITEM REVIEW MY ACCOUNT

easyCBM Math Measures Alignment - Grades K-2 - First Grade - Ordered BM Items

Subject: Math

Grade: K-2

Open Date: March 05, 2012

Close Date: March 30, 2012

Number of Items: 135

Resources

- [Grade K: Math Common Core Standards](#)
- [Grades K-1: Math Common Core Standards](#)
- [Grades 1-2: Math Common Core Standards](#)
- [Grade K \(Table\): Math Common Core Standards](#)
- [Grade 1 \(Table\): Math Common Core Standards](#)
- [Grade 2 \(Table\): Math Common Core Standards](#)

Instructions

[Begin Review »](#)

CCSS PDFs
and Tables

Step Two: Determine Math Item Alignment to On- or Prior-grade CCS or to Essential Skills for On-grade Mastery

e.g., a given math item will align on-grade or prior-grade or to a skill essential for on-grade mastery

On-grade CCS Alignment:
Directly Linked

12.

$\frac{3}{10} + \frac{3}{5} =$

- A. $\frac{3}{10} + \frac{8}{10}$
- B. $\frac{3}{10} + \frac{3}{10}$
- C. $\frac{3}{10} + \frac{6}{10}$

Number and Operations-Fractions **5.NF**

1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.

This grade 5 item is directly aligned to standard 5.NF.1

On-grade CCS Alignment: Somewhat Linked

1.

$0.11 + 0.02 = \underline{\quad}$

A. 0.13
B. 0.08
C. 1.30

Number and Operations in Base Ten **5.NBT**

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..

This grade 5 item is somewhat aligned to standard 5.NBT.7

Prior-grade CCS Alignment: Directly Linked

42.

$$\begin{array}{r} 6 \overline{)322} \\ \hline \end{array}$$

What do you do first?

A. $32 \div 6$
B. $3 \div 6$
C. $22 \div 6$

Number and Operations in Base Ten **4.NBT**

6. Find whole-number quotients and remainders with up to four-digit dividends and one-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.

This grade 5 item is directly aligned to prior-grade standard 4.NBT.6

Prior-grade CCS Alignment: Somewhat Linked

28.

12 in

Cut on the line.

Area of the bottom part = ___

- A. $12 + 7$
- B. 7×12
- C. $7 - 4$

Measurement and Data **4.MD**

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.*

This grade 5 item is somewhat aligned to prior-grade standard 4.MD.3

Skill Addressed: Essential Skill for On-grade CCS Mastery

8.

$2.6 - 1.8 = \underline{\quad}$

- A. 1.2
- B. 0.6
- C. 0.8

Number and Operations in Base Ten
5.NBT

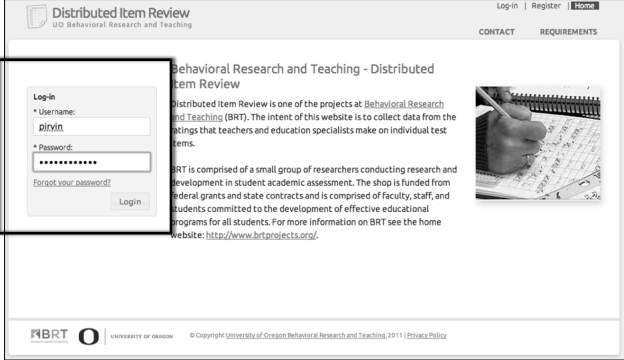
7. Add, subtract, multiply, and divide decimals to *hundredths*, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

This grade 5 item is neither directly nor somewhat aligned to standard 5.NBT. 7, but addresses an **essential skill for on-grade standard mastery**:
i.e., subtracting decimals to tenths

...let's pause for a moment.

Do you have any questions or comments concerning review of the CCSS, or how you will determine the alignment of math items to CCSS and skills essential for on-grade standard mastery?

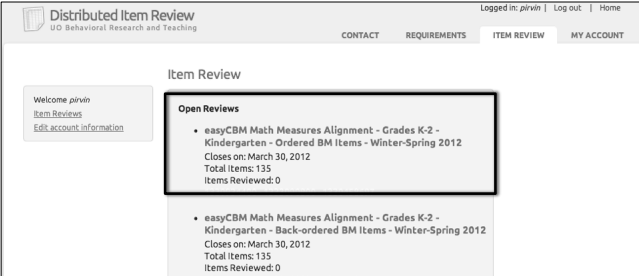
Accessing the DIR
Log on to the DIR website:
<http://www.brtemreview.com/shawndir>



The screenshot shows the website for Distributed Item Review (DIR) at the University of Oregon Behavioral Research and Teaching. The page features a navigation bar with links for 'Log in', 'Register', and 'Home'. Below the navigation bar, there is a 'Login' form with fields for 'Username' (containing 'pivlin') and 'Password' (masked with dots). A 'Forgot your password?' link and a 'Login' button are also present. The main content area includes a title 'Behavioral Research and Teaching - Distributed Item Review' and introductory text about the project's purpose. A small image of a hand writing on a notepad is visible on the right side of the page. The footer contains the 'FBRT' logo, the University of Oregon name, and copyright information for 2011.

Accessing the DIR

Access an open review by clicking on the title of your first review



The screenshot shows the 'Distributed Item Review' website. The header includes the logo, the text 'UQ Behavioral Research and Teaching', and navigation links for 'CONTACT', 'REQUIREMENTS', 'ITEM REVIEW', and 'MY ACCOUNT'. The user is logged in as 'pavin'. The main content area is titled 'Item Review' and contains a section for 'Open Reviews'. Two reviews are listed:

- easyCBM Math Measures Alignment - Grades K-2 - Kindergarten - Ordered BM Items - Winter-Spring 2012
Closes on: March 30, 2012
Total Items: 135
Items Reviewed: 0
- easyCBM Math Measures Alignment - Grades K-2 - Kindergarten - Back-ordered BM Items - Winter-Spring 2012
Closes on: March 30, 2012
Total Items: 135
Items Reviewed: 0

Accessing the DIR

- Carefully look over the specifics of the open review you have selected:
 - Review details (dates, # items)
 - Resources → CCSS PDFs and Tables
 - Instructions
- Get started by clicking on “Begin Review”

The screenshot shows the 'Distributed Item Review' website. At the top, there is a navigation bar with 'CONTACT', 'REQUIREMENTS', 'ITEM REVIEW', and 'MY ACCOUNT'. The main content area displays the following information:

- Title:** easyCBM Math Measures Alignment Proficiency Training - Grades K-2 - K-2
- Subject:** Math
- Grade:** K-2
- Open Date:** February 28, 2012
- Close Date:** March 05, 2012
- Number of Items:** 3
- Resources:**
 - Grades K-1; Math Common Core Standards
 - Grade K (Table); Math Common Core Standards
 - Grade 1 (Table); Math Common Core Standards
- Instructions:** Welcome to the easyCBM Math Measures Alignment Study, Proficiency Training Review! Please carefully review the following three math items for alignment to on-grade, prior-grade and on-grade essential skills. Please make sure you have completed the training review before Monday, March 5th, 2012. If there are any questions concerning this study, please contact Shawn Irvin, the project manager for this study, at pirvin@uoregon.edu. Should you have any technical problems or questions concerning the DIR website, please click the "Contact" tab at the top of any page of the review. Thank you for your time and expertise!
- Buttons:** 'Begin Review »' and 'CONTACT'.

Annotations with arrows point to the following elements:

- 'CONTACT' tab: Contact info for technical difficulties
- Resources list: CCSS and Training Resources
- Instructions section: Review instructions
- 'Begin Review »' button: "Begin Review"

Reviewing Items on the DIR

1. Answer/complete **all questions appropriate** for a given item
2. Resources still accessible
3. **CRITICAL!** Click "Save and Continue" to save your responses and move to the next item
4. Check your progress, and stop and restart a review using "green checks"

Item list and checks

↓

Use green checks to stop and restart your review

Item 1 of 135
 ✓ K.F.1
 ✓ K.F.2
 ✓ K.F.3
 - K.F.4
 - K.F.5
 - K.F.6
 - K.F.7
 - K.F.8
 - K.F.9
 - K.F.10
 - K.F.11
 - K.F.12
 - K.F.13
 - K.F.14
 - K.F.15
 - K.F.16
 - K.F.17
 - K.F.18
 - K.F.19
 - K.F.20
 - K.F.21
 - K.F.22
 - K.F.23
 - K.F.24
 - K.F.25
 - K.F.26
 - K.F.27
 - K.F.28
 - K.F.29
 - K.F.30
 - K.F.31
 - K.F.32
 - K.F.33
 - K.F.34
 - K.F.35
 - K.F.36
 - K.F.37
 - K.F.38
 - K.F.39

easyCBM Math Measures Alignment - Grades K-2 - Math - Winter-Spring 2012
 K-F.K.1
 Review item

TEST ITEM

1.

0

2

What number is missing?

A. 3
B. 4
C. 1

- K.F.K.43
- K.F.K.44
- K.F.K.45
- K.W.K.1
- K.W.K.2
- K.W.K.3
- K.W.K.4
- K.W.K.5
- K.W.K.6
- K.W.K.7
- K.W.K.8
- K.W.K.9
- K.W.K.10
- K.W.K.11
- K.W.K.12
- K.S.K.44
- K.S.K.45

Item 1 of 135
 ✓ K.F.1
 ✓ K.F.2
 ✓ K.F.3
 - K.F.4
 - K.F.5
 - K.F.6
 - K.F.7
 - K.F.8
 - K.F.9
 - K.F.10
 - K.F.11
 - K.F.12
 - K.F.13
 - K.F.14
 - K.F.15
 - K.F.16
 - K.F.17
 - K.F.18
 - K.F.19
 - K.F.20
 - K.F.21
 - K.F.22
 - K.F.23
 - K.F.24
 - K.F.25
 - K.F.26
 - K.F.27
 - K.F.28
 - K.F.29
 - K.F.30
 - K.F.31
 - K.F.32
 - K.F.33
 - K.F.34
 - K.F.35
 - K.F.36
 - K.F.37
 - K.F.38
 - K.F.39

easyCBM Math Measures Alignment - Grades K-2 - Math - Winter-Spring 2012
 K-F.K.1
 Review item

ITEM REVIEW QUESTIONS

Is the math item aligned to an ON-GRADE or PRIOR-GRADE Common Core Standard?
 0 = no link; 1 = somewhat linked; 2 = direct link
 0 1 2

Enter the name of the Common Core Standard to which the item is aligned.
 e.g., 2.NBT.1b

If you rated the alignment of the item to the CCS as 0 (zero), does the item address an important requisite skill needed for mastery of an ON-GRADE standard?
 No Yes

Resources available on each item page

- Grades 1-2: Math Common Core Standards #)
- Grades K-1: Math Common Core Standards #)
- Grade K: Math Common Core Standards #)
- Grade K (Table): Math Common Core Standards #)
- Grade 1 (Table): Math Common Core Standards #)
- Grade 2 (Table): Math Common Core Standards #)

Item Review Questions

Must answer this question. If aligned to a standard, answer as "no".

Completing Your Item Review

1. Complete 3-item proficiency review by:
Monday, March 5th
2. Complete 135-item main review by:
Monday, April 2nd
3. Remember you may stop your main review and restart at the point you left off to avoid “review fatigue”
4. Double check there are no items left to review on “End of Review” page
5. Email Shawn when you have finished the review

**Thank you for participating!
Questions / Comments?**

Shawn Irvin
pirvin@uoregon.edu



Appendix B

Table 1
Item level alignment results for the easyCBM® third grade fall benchmark in mathematics.

Item	PS1	PS1		PS1 Ave	PS2			PS2 Ave	SS1	SS1		SS1 Ave	SS2	SS2		SS2 Ave	SS3	SS3		SS3 Ave	Total n	Req Skills
		PS1 N	Ave		PS2 N	N	N			N	N			N	N			N				
1	3.NF.1	2		2					2.G.3	1	1		3.G.2	1	1		NS	1	**			
2	3.NF.1	4	3	2					3.G.2	1	2											
3	3.NF.1	4	3	2					3.G.2	1	2											
4	3.NF.1	4	3	2					3.G.2	1	2											
5	3.NF.1	4	3	2					3.G.2	1	2											
6	3.NF.1	4	3	2					3.G.2	1	2											
7	3.NF.1	4	3	2					3.G.2	1	1											
8	3.NF.1	4	3	1.67					3.G.2	1	2											
9	3.NF.1	4	3	1.67					3.G.2	1	1											
10	3.NF.3	5	4	2																		
11	3.NF.3	4	3	2					3.NF.2	1	2											
12	3.NF.3	5	4	1.5																		
13	3.NF.3	5	4	2																		
14	3.NF.3	4	3	2					3.NF.1	1	1											
15	NS	3		**					2.G.1	1	1		3.G.2	1	1							
16	NS	3		**					2.G.1	1	1		3.G.2	1								
17	NS	3		**					2.G.1	1	1		3.G.2	1								
18	3.G.2	2		1.5	NS	2	1	**	2.G.1	1	2											
19	NS	2	1	**					2.OA.1	1	2		2.MD.1	1	1		3.MD.6	1	1			
20	2.G.1	2		1.5	NS	2	1	**	4.G.1	1	1											
21	2.G.1	2		2	2.G.1	2	1	1	4.G.2	1	2											
22	NS	3		**					2.G.1	2	1.5											
23	2.G.1	2		2					3.G.1	1	2		3.G.2	1	1		NS	1		**		
24	NS	4		**					2.G.1	1	1											
25	***								2.G.2	1	2		2.OA.1	1	2		2.OA.2	1	2	3.G.2	1	
26	NS	4		**					3.G.1	1	2											
27	3.G.1	2		2					4.G.1	1	2		2.G.1	1	*		NS	1	**			

Table 1 cont.
Item level alignment results for the easyCBM® third grade fall benchmark in mathematics.

Item	PS1	PS1		PS1 Ave	PS2		PS2 Ave	SS1	SS1		SS2	SS2		SS3	SS3		Total n	Req Skills
		N	Ave		N	Ave			N	Ave		N	Ave		N	Ave		
28	3.MD.8	5	4	2														
29	2.G.1	4	3	1.67				NS	1	**								
30	2.G.1	4	3	2				NS	1	**								
31	3.OA.1	2		1				3.OA.3	1	2	3.OA.9	1	1	NS	1		**	
32	3.OA.9	4		1.75				NS	1	**								
33	3.OA.3	3	2	2				3.OA.2	1	2	3.OA.8	1	2					
34	3.OA.3	3	2	2				3.OA.2	1	2	3.OA.8	1	2					
35	NS	4		**				3.OA.1	1	1								
36	3.OA.3	3	2	2				3.OA.2	1	1	3.OA.8	1	1					
37	3.OA.7	2	1	2	3.OA.6	2	2	3.OA.4	1	2								
38	3.OA.9	2		1	3.OA.3	2	1	2	3.OA.2	1	1							
39	3.OA.7	2	1	2	3.OA.6	2	2	3.OA.4	1	2								
40	3.OA.7	2	1	2	3.OA.6	2	2	3.OA.4	1	2								
41	3.OA.3	2		2				3.OA.7	1	2	3.OA.2	1	1	3.OA.1	1		*	
42	3.OA.9	4		1.5				NS	1	**								
43	3.OA.5	5	4	1.5														
44	3.OA.5	3		2				3.OA.9	1	2	3.OA.4	1	*					
45	3.NBT.3	3	2	2				3.OA.7	2	2								

Note. Items are labeled 1 to 45 based on their location in actual seasonal benchmark tests. For example, Item 1 in the Fall sheet, refers to the first test item on the fall benchmark for that grade. Unique CCSS standard identifiers are used in this table (e.g., 3.NF.1), where the first number indicates grade level, the letter code refers to the grade-level domain (e.g., NF = Numbers and Operations - Fractions), and the last number refers to the standard number within a given domain. Please note that alignment ratings were not broken down by sub-standard (e.g., 3.NF.3a, 3.NF.3b). When substandards were indicated by raters they were collapsed into the parent standard (e.g., 3.NF.3a, 3.NF.3b -> 3.NF.3). When Total n is greater 5, Rater 1 Phase 1 chose multiple standards as being aligned to a given item.

PS1 = primary standard (standard with the most raters, out of 5, selecting it); PS2 - second primary standard (in cases where two primary standards were required); SS1 = secondary standard (a standard selected as being aligned by a smaller number of raters relative to primary PS1/PS2); N = number of raters selecting a given standard; Ave N = number of raters included in the Ave calculation; Ave = average alignment rating strength (calculated using a 3-point scale from 0 to 2); NS (alone) = no standard selected as being aligned; * = Standard selected by the Rater 1 Phase 1, where rating strength was not given; ** = NS selected without strength rating; *** = no chosen CCSS had a higher frequency count over another, thus, any standard indicated by a reviewer was deemed a secondary standard with a frequency count of 1; Req Skills = prerequisite skill alignment (when a given item was ranked as not aligned (NS) to any on- or prior-grade standard, was the item aligned to a prerequisite skill necessary for mastery).

Table 2 cont.

Item level alignment results for the easyCBM® third grade winter benchmark in mathematics.

Item	PS1	PS1 N	PS1 Ave	PS1 Ave	PS2	PS2 N	PS2 Ave	PS2 Ave	SS1	SS1 N	SS1 Ave	SS1 Ave	SS2	SS2 N	SS2 Ave	SS2 Ave	SS3	SS3 N	SS3 Ave	SS3 Ave	SS4	SS4 N	SS4 Ave	SS4 Ave	SS5	SS5 N	SS5 Ave	SS5 Ave	Total n	Req Skills
28	NS	3		**					3.NF.1	1	1		3.NF.3	1	1													5	0	
29	NS	5		**																								5	0	
30	2.G.1	4	3	2					2.G.2	1	1																	5	0	
31	3.OA.1	3	2	2					3.OA.4	1	2		3.OA.5	1	2													5	0	
32	3.OA.6	2		2					3.OA.4	1	2		3.OA.9	1	2		3.OA.7	1		*								5	0	
33	3.OA.2	3		2					3.OA.3	2	2																	5	0	
34	3.OA.4	2		2					3.OA.6	1	2		3.OA.9	1	2		3.OA.7	1		*								5	0	
35	3.OA.5	4	3	2					NS	1	**																	5	0	
36	3.OA.2	5	4	2																								5	0	
37	3.OA.7	2	1	2					3.OA.4	1	2		3.OA.6	1	2		3.OA.9	1		2								5	0	
38	3.OA.4	3	2	2					3.OA.3	1	2		3.OA.6	1	2													5	0	
39	3.OA.1	3		2					3.OA.3	2	2																	5	0	
40	3.OA.3	2	1	2	3.NF.3	2		2	3.OA.2	1	2																	5	0	
41	3.OA.6	3		2					3.OA.7	2	1	2																5	0	
42	3.OA.5	4	3	2					3.OA.9	1	2		3.OA.3	1		*												6	0	
43	3.OA.5	4	3	2					3.OA.9	1	2																	5	0	
44	3.OA.5	3		2					3.OA.3	1	2		3.OA.4	1														5	0	
45	NS	4		**					2.G.1	1	1																	5	0	

Note. Items are labeled 1 to 45 based on their location in actual seasonal benchmark tests. For example, Item 1 in the Winter sheet, refers to the first test item on the winter benchmark for that grade. Unique CCSS standard identifiers are used in this table (e.g., 3.NF.1), where the first number indicates grade level, the letter code refers to the grade-level domain (e.g., NF = Numbers and Operations - Fractions), and the last number refers to the standard number within a given domain. Please note that alignment ratings were not broken down by sub-standard (e.g., 3.NF.3a, 3.NF.3b).

When substandards were indicated by raters they were collapsed into the parent standard (e.g., 3.NF.3a, 3.NF.3b -> 3.NF.3).

When Total n is greater 5, Rater 1 Phase 1 chose multiple standards as being aligned to a given item.

PS1 = primary standard (standard with the most raters, out of 5, selecting it); PS2 - second primary standard (in cases where two primary standards were required); SS1 = secondary standard (a standard selected as being aligned by a smaller number of raters relative to primary PS1/PS2); N = number of raters selecting a given standard; Ave N = number of raters included in the Ave calculation; Ave = average alignment rating strength (calculated using a 3-point scale from 0 to 2); NS (alone) = no standard selected as being aligned; * = Standard selected by the Rater 1 Phase 1, where rating strength was not given; ** = NS selected without strength rating; *** = no chosen CCSS had a higher frequency count over another, thus, any standard indicated by a reviewer was deemed a secondary standard with a frequency count of 1; Req Skills = prerequisite skill alignment (when a given item was ranked as not aligned (NS) to any on- or prior-grade standard, was the item aligned to a prerequisite skill necessary for mastery).

Table 3 cont.

Item level alignment results for the easyCBM® third grade spring benchmark in mathematics.

Item	PS1	PS1 N	PS1 Ave	PS1 Ave	PS2	PS2 N	PS2 Ave	SS1	SS1 N	SS1 Ave	SS2	SS2 N	SS2 Ave	SS3	SS3 N	SS3 Ave	Total n	Req Skills
32	3.OA.1	4	3	2				3.OA.3	1	2							5	0
33	3.OA.9	4	4	1.25				NS	1	**							5	0
34	3.OA.1	3	2	1.5				3.OA.3	1	2	3.OA.7	1	1				5	0
35	3.OA.3	3	2	2				3.OA.1	1	2	3.OA.8	1	1				5	0
36	NS	3		**				3.NF.3	1	2	3.OA.9	1	1				5	0
37	3.OA.7	3	2	2				3.OA.6	2	2							5	0
38	3.OA.5	2	2	1.5				3.OA.7	1	2	3.OA.1	1	1	NS	1	**	5	0
39	3.OA.1	4	3	2				3.OA.3	1	2							5	0
40	3.OA.5	5	4	2													5	0
41	3.MD.2	3	2	2				3.OA.3	2	2							5	0
42	3.OA.8	3	3	2				3.OA.2	1	2	NS	1	**				5	0
43	3.OA.3	2	1	2	3.OA.9	2	2	3.OA.2	1	2							5	0
44	3.OA.5	4	4	2				3.OA.4	1	*							5	0
45	3.OA.1	3	2	2				3.OA.3	2	2							5	0

Note. Items are labeled 1 to 45 based on their location in actual seasonal benchmark tests. For example, Item 1 in the Spring sheet, refers to the first test item on the spring benchmark for that grade. Unique CCSS standard identifiers are used in this table (e.g., 3.NF.1), where the first number indicates grade level, the letter code refers to the grade-level domain (e.g., NF = Numbers and Operations - Fractions), and the last number refers to the standard number within a given domain. Please note that alignment ratings were not broken down by sub-standard (e.g., 3.NF.3a, 3.NF.3b).

When substandards were indicated by raters they were collapsed into the parent standard (e.g., 3.NF.3a, 3.NF.3b -> 3.NF.3).

When Total n is greater 5, Rater 1 Phase 1 chose multiple standards as being aligned to a given item.

PS1 = primary standard (standard with the most raters, out of 5, selecting it); PS2 - second primary standard (in cases where two primary standards were required); SS1 = secondary standard (a standard selected as being aligned by a smaller number of raters relative to primary PS1/PS2); N = number of raters selecting a given standard; Ave N = number of raters included in the Ave calculation; Ave = average alignment rating strength (calculated using a 3-point scale from 0 to 2); NS (alone) = no standard selected as being aligned; * = Standard selected by the Rater 1 Phase 1, where rating strength was not given; ** = NS selected without strength rating; *** = no chosen CCSS had a higher frequency count over another, thus, any standard indicated by a reviewer was deemed a secondary standard with a frequency count of 1; Req Skills = prerequisite skill alignment (when a given item was ranked as not aligned (NS) to any on- or prior-grade standard, was the item aligned to a prerequisite skill necessary for mastery).

Table 4 cont.

Item level alignment results for the easyCBM® fourth grade fall benchmark in mathematics.

Item	PS1	PS1 N	PS1 Ave	PS1 Ave	PS2	PS2 N	PS2 Ave	PS2 Ave	SS1	SS1 N	SS1 Ave	SS1 Ave	SS2	SS2 N	SS2 Ave	SS2 Ave	SS3	SS3 N	SS3 Ave	SS3 Ave	SS4	SS4 N	SS4 Ave	SS4 Ave	SS5	SS5 N	SS5 Ave	SS5 Ave	Total n	Req Skills
28	4.MD.3	2	1	2	3.MD.6	2	2		4.MD.7	1	2																	5	0	
29	NS	4		**					3.MD.3	1	*																	5	2	
30	NS	2		**					4.NBT.1	1	1		4.NBT.3	1	1		4.NBT.2	1	*									5	2	
31	3.OA.5	2		2	4.NBT.5	2	1	1	3.OA.7	1	2																	5	0	
32	3.OA.3	3		1.67					4.OA.1	1	2		4.OA.2	1	*													5	0	
33	4.OA.2	2	1	2	3.OA.3	2		1.5	3.OA.1	1	1																	5	0	
34	4.MD.2	2	1	2					3.OA.8	1	2		5.NBT.4	1	2		NS	1	**									5	0	
35	4.NBT.5	4	3	2					3.OA.7	1	1																	5	0	
36	4.MD.2	3		2					4.OA.2	1	*		NS	1	**													5	0	
37	4.NBT.5	5	4	2																								5	0	
38	4.MD.2	3	2	1.5					4.MD.1	1	1		NS	1	**													5	0	
39	4.MD.2	3	2	2					3.OA.8	1	1		NS	1	**													5	0	
40	4.MD.2	2	1	1	NS	2		**	4.MD.1	1	2																	5	1	
41	4.MD.2	4	3	2					NS	1	**																	5	0	
42	4.MD.2	3	2	2					4.OA.3	1	1		NS	1	**													5	0	
43	3.OA.3	2	2	1.5					4.OA.3	1	1		4.OA.2	1	*		NS	1	**									5	0	
44	4.MD.2	2	1	1					4.MD.1	1	1		5.MD.1	1	1		NS	1	**									5	0	
45	3.NBT.3	2		2					3.OA.3	1	2		4.MD.2	1	1		4.OA.2	1	*									5	0	

Note. Items are labeled 1 to 45 based on their in location actual seasonal benchmark tests. For example, Item 1 in the Fall sheet, refers to the first test item on the fall benchmark for that grade. Unique CCSS standard identifiers are used in this table (e.g., 4.NF.1), where the first number indicates grade level, the letter code refers to the grade-level domain (e.g., NF = Numbers and Operations - Fractions), and the last number refers to the standard number within a given domain. Please note that alignment ratings were not broken down by sub-standard (e.g., 4.NF.3a, 4.NF.3b).

When substandards were indicated by raters they were collapsed into the parent standard (e.g., 4.NF.3a, 4.NF.3b -> 3.NF.3).

When Total n is greater 5, Rater 1 Phase 1 chose multiple standards as being aligned to a given item.

PS1 = primary standard (standard with the most raters, out of 5, selecting it); PS2 - second primary standard (in cases where two primary standards were required); SS1 = secondary standard (a standard selected as being aligned by a smaller number of raters relative to primary PS1/PS2); N = number of raters selecting a given standard; Ave N = number of raters included in the Ave calculation; Ave = average alignment rating strength (calculated using a 3-point scale from 0 to 2); NS (alone) = no standard selected as being aligned; * = Standard selected by the Rater 1 Phase 1, where rating strength was not given; ** = NS selected without strength rating; *** = no chosen CCSS had a higher frequency count over another, thus, any standard indicated by a reviewer was deemed a secondary standard with a frequency count of 1; Req Skills = prerequisite skill alignment (when a given item was ranked as not aligned (NS) to any on- or prior-grade standard, was the item aligned to a prerequisite skill necessary for mastery).

Table 5 cont.

Item level alignment results for the easyCBM® fourth grade winter benchmark in mathematics.

Item	PS1	PS1			PS2	PS2			SS1	SS1			SS2	SS2			SS3	SS3			SS4	SS4			Total n	Req Skills
		PS1 N	Ave N	PS1 Ave		PS2 N	Ave N	PS2 Ave		SS1 N	Ave N	SS1 Ave		SS2 N	Ave N	SS2 Ave		SS3 N	Ave N	SS3 Ave		SS4 N	Ave N	SS4 Ave		
28	3.MD.5	3	2	1.5				3.MD.7	1	2													4	0		
29	3.MD.6	2		2				3.MD.5	1	2	4.MD.3	1	*										4	0		
30	4.MD.2	2		2				4.OA.2	1	*	NS	1	**										4	0		
31	3.OA.9	3		1.33				4.OA.5	1	*													4	0		
32	4.NBT.2	2	1	1				3.NBT.2	1	1	NS	1	**										4	1		
33	4.NBT.5	3		2				NS	1	*													4	0		
34	4.MD.3	2	1	2	3.MD.7	2	2																4	0		
35	4.NBT.5	4	3	2																			4	0		
36	4.OA.5	3	2	2				3.OA.9	1	1													4	0		
37	4.NBT.5	4	3	2																			4	0		
38	4.NBT.5	4	3	2																			4	0		
39	4.MD.2	3	2	2				NS	1	**													4	0		
40	4.NBT.5	4	3	2																			4	0		
41	3.MD.3	2		1				4.OA.5	1	2	4.MD.2	1	*										4	0		
42	4.NBT.5	4	3	2																			4	0		
43	4.MD.2	2	1	2				3.MD.2	1	2	NS	1	**										4	0		
44	4.MD.2	2	1	2				3.MD.2	1	2	NS	1	**										4	0		
45	4.NBT.1	3		1.67				4.NBT.5	1	*	4.OA.5	1	*										5	0		

Note. Items are labeled 1 to 45 based on their location in actual seasonal benchmark tests. For example, Item 1 in the Winter sheet, refers to the first test item on the winter benchmark for that grade. Unique CCSS standard identifiers are used in this table (e.g., 4.NF.1), where the first number indicates grade level, the letter code refers to the grade-level domain (e.g., NF = Numbers and Operations - Fractions), and the last number refers to the standard number within a given domain. Please note that alignment ratings were not broken down by sub-standard (e.g., 4.NF.3a, 4.NF.3b).

When substandards were indicated by raters they were collapsed into the parent standard (e.g., 4.NF.3a, 4.NF.3b -> 3.NF.3).

When Total n is greater 5, Rater 1 Phase 1 chose multiple standards as being aligned to a given item.

PS1 = primary standard (standard with the most raters, out of 5, selecting it); PS2 - second primary standard (in cases where two primary standards were required); SS1 = secondary standard (a standard selected as being aligned by a smaller number of raters relative to primary PS1/PS2); N = number of raters selecting a given standard; Ave N = number of raters included in the Ave calculation; Ave = average alignment rating strength (calculated using a 3-point scale from 0 to 2); NS (alone) = no standard selected as being aligned; * = Standard selected by the Rater 1 Phase 1, where rating strength was not given; ** = NS selected without strength rating; *** = no chosen CCSS had a higher frequency count over another, thus, any standard indicated by a reviewer was deemed a secondary standard with a frequency count of 1; Req Skills = prerequisite skill alignment (when a given item was ranked as not aligned (NS) to any on- or prior-grade standard, was the item aligned to a prerequisite skill necessary for mastery).

Table 6 cont.

Item level alignment results for the easyCBM® fourth grade spring benchmark in mathematics.

Item	PS1	PS1		PS1 Ave	PS2	PS2		PS2 Ave	SS1	SS1		SS1 Ave	SS2	SS2		SS2 Ave	SS3	SS3		SS3 Ave	SS4	SS4		SS4 Ave	Total n	Req Skills
		PS1 N	Ave			PS2 N	Ave			SS1 N	Ave			SS2 N	Ave			SS3 N	Ave			SS4 N	Ave			
28	3.MD.5	4	3	1.67																				4	0	
29	3.MD.7	3		1.67					4.MD.3	1		*												4	0	
30	3.OA.3	2		1.5					4.MD.2	1		2	4.OA.2	1		*								4	0	
31	4.OA.5	3	2	1.5					NS	1		**												4	1	
32	NS	2		**					3.OA.1	1		2	4.NBT.5	1		*								4	2	
33	3.OA.3	2		1.5					4.MD.2	1		1	4.OA.2	1		*								4	0	
34	4.MD.2	2		2					4.NF.4	1		2	4.OA.3	1		*								4	0	
35	***								3.NBT.2	1		1	4.NBT.1	1		1	4.NBT.2	1	*	NS	1		**	4	1	
36	3.OA.3	2		1.5					4.OA.1	1		1	4.OA.2	1		*								4	0	
37	4.NBT.5	4	3	1.67																				4	0	
38	3.OA.4	2		1.5	4.OA.5	2	1	1																4	0	
39	4.MD.2	3	2	1.5					NS	1		**												4	0	
40	4.MD.2	3	2	1.5					NS	2		**												5	0	
41	3.NBT.3	2		2					3.OA.3	1		2	4.OA.2	1		*								4	0	
42	4.NBT.5	4	3	2																				4	0	
43	4.MD.2	2		1					4.MD.1	1		*	NS	1		**								4	0	
44	4.MD.2	3	2	2					NS	1		**												4	0	
45	4.NBT.5	4	3	2																				4	0	

Note. Items are labeled 1 to 45 based on their location in actual seasonal benchmark tests. For example, Item 1 in the Spring sheet, refers to the first test item on the spring benchmark for that grade. Unique CCSS standard identifiers are used in this table (e.g., 4.NF.1), where the first number indicates grade level, the letter code refers to the grade-level domain (e.g., NF = Numbers and Operations - Fractions), and the last number refers to the standard number within a given domain. Please note that alignment ratings were not broken down by sub-standard (e.g., 4.NF.3a, 4.NF.3b).

When substandards were indicated by raters they were collapsed into the parent standard (e.g., 4.NF.3a, 4.NF.3b -> 3.NF.3).

When Total n is greater 5, Rater 1 Phase 1 chose multiple standards as being aligned to a given item.

PS1 = primary standard (standard with the most raters, out of 5, selecting it); PS2 - second primary standard (in cases where two primary standards were required); SS1 = secondary standard (a standard selected as being aligned by a smaller number of raters relative to primary PS1/PS2); N = number of raters selecting a given standard; Ave N = number of raters included in the Ave calculation; Ave = average alignment rating strength (calculated using a 3-point scale from 0 to 2); NS (alone) = no standard selected as being aligned; * = Standard selected by the Rater 1 Phase 1, where rating strength was not given; ** = NS selected without strength rating; *** = no chosen CCSS had a higher frequency count over another, thus, any standard indicated by a reviewer was deemed a secondary standard with a frequency count of 1; Req Skills = prerequisite skill alignment (when a given item was ranked as not aligned (NS) to any on- or prior-grade standard, was the item aligned to a prerequisite skill necessary for mastery).

Table 7 cont.

Item level alignment results for the easyCBM® fifth grade fall benchmark in mathematics.

Item	PS1	PS1 N	PS1 Ave N	PS1 Ave	SS1	SS1 N	SS1 Ave N	SS1 Ave	SS2	SS2 N	SS2 Ave N	SS2 Ave	SS3	SS3 N	SS3 Ave N	SS3 Ave	Total n	Req Skills
28	4.MD.3	2	1	2	NS	2		**	4.MD.2	1		2					5	1
29	NS	5		**													5	3
30	4.NBT.6	3	2	1.5	5.NBT.6	1		2	NS	1		**					5	1
31	NS	4		**	5.NBT.6	1		2									5	3
32	NS	3		**	5.NBT.6	1		2	4.OA.2	1		1					5	2
33	NS	3		**	5.NBT.6	1		2	4.NBT.6	1		2					5	2
34	5.NBT.6	5	4	1.5													5	0
35	NS	3		**	5.NBT.6	1		2	4.NBT.6	1		1					5	2
36	NS	4		**	5.NBT.6	1		2									5	3
37	NS	3		**	5.NBT.7	2		1.5									5	2
38	5.NBT.7	3	2	1.5	5.NBT.4	2		1.5									5	0
39	NS	4		**	5.NBT.6	1		2									5	3
40	NS	4		**	5.NBT.6	1		2									5	2
41	NS	3		**	5.NBT.6	1		2	4.NBT.3	1		2					5	1
42	5.NBT.7	2	1	2	4.NBT.3	1		2	5.NBT.4	1		1	5.NF.7	1		1	5	0
43	NS	3		**	5.NBT.6	1		2	4.NBT.4	1		2					5	2
44	4.NBT.6	4	3	1.67	5.NBT.6	1		2									5	0
45	4.NBT.6	3	2	1.5	5.NBT.6	1		2	4.NBT.1	1		2					5	0

Note. Items are labeled 1 to 45 based on their location in actual seasonal benchmark tests. For example, Item 1 in the Fall sheet, refers to the first test item on the fall benchmark for that grade. Unique CCSS standard identifiers are used in this table (e.g., 5NF.1), where the first number indicates grade level, the letter code refers to the grade-level domain (e.g., NF = Numbers and Operations - Fractions), and the last number refers to the standard number within a given domain. Please note that alignment ratings were not broken down by sub-standard (e.g., 5.NF.4a, 5.NF.4b). When substandards were indicated by raters they were collapsed into the parent standard (e.g., 5.NF.4a, 5.NF.4b -> 5.NF.4).

When Total n is greater 5, Rater 1 Phase 1 chose multiple standards as being aligned to a given item.

PS1 = primary standard (standard with the most raters, out of 5, selecting it); PS2 - second primary standard (in cases where two primary standards were required); SS1 = secondary standard (a standard selected as being aligned by a smaller number of raters relative to primary PS1/PS2); N = number of raters selecting a given standard; Ave N = number of raters included in the Ave calculation; Ave = average alignment rating strength (calculated using a 3-point scale from 0 to 2); NS (alone) = no standard selected as being aligned; * = Standard selected by the Rater 1 Phase 1, where rating strength was not given; ** = NS selected without strength rating; *** = no chosen CCSS had a higher frequency count over another, thus, any standard indicated by a reviewer was deemed a secondary standard with a frequency count of 1; Req Skills = prerequisite skill alignment (when a given item was ranked as not aligned (NS) to any on- or prior-grade standard, was the item aligned to a prerequisite skill necessary for mastery).

Table 8
Item level alignment results for the easyCBM® fifth grade winter benchmark in mathematics.

Item	PS1	PS1 N	PS1 Ave	PS1 Ave	PS2	PS2 N	PS2 Ave	PS2 Ave	SS1	SS1 N	SS1 Ave	SS1 Ave	SS2	SS2 N	SS2 Ave	SS2 Ave	SS3	SS3 N	SS3 Ave	SS3 Ave	Total n	Req Skills
1	5.NBT.7	4	3	2					NS	1	*										5	1
2	NS	4		**					5.NBT.1	1	2										5	3
3	5.NBT.7	4	3	1.33					5.NBT.4	1	1										5	0
4	5.NBT.7	3	2	1.5					5.NBT.4	2	1.5										5	0
5	5.NBT.7	3	2	1.5					5.NBT.4	2	1.5										5	0
6	4.NF.3	4	3	2					4.NF.1	1	1										5	0
7	5.NF.2	3	2	1.5					5.NF.1	2	2										5	0
8	5.NBT.7	3	2	1.5					4.MD.3	1	2		NS	1		**					5	0
9	4.NF.3	2	1	2	5.NF.6	2	1.5		5.NF.5	1	2										5	0
10	5.NF.1	4	3	1.67					4.NF.2	1	2										5	0
11	4.NF.2	4	3	1.67					4.NF.1	1	1										5	0
12	4.NF.1	3		2					4.NF.3	1	*		NS	1		**					5	1
13	5.NF.1	4	3	1.67					4.NF.2	1	2										5	0
14	5.NF.2	2		1.5	4.NF.3	2	1	1	4.NF.1	1	1										5	0
15	NS	5		**																	5	2
16	5.MD.3	2		2					5.MD.4	1	2		5.MD.5	1	*	NS	1		**		5	1
17	NS	4		**					5.MD.4	1	*										5	3
18	5.MD.5	4	3	1.67					5.MD.3	1	2										5	0
19	5.MD.5	5	4	2																	5	0
20	5.MD.5	5	4	1.75																	5	0
21	4.MD.1	2		1.5	NS	2	**		5.MD.3	1	2										5	0
22	NS	4		**					5.MD.3	1	*										5	4
23	5.MD.3	2		2	5.MD.4	2	1	2	NS	1	**										5	1
24	NS	3		**					5.MD.3	2	1	2									5	2
25	5.MD.5	5	4	1.75																	5	0
26	5.MD.5	5	4	1.75																	5	0
27	NS	3		**					5.MD.3	1	2		5.MD.5	1	2						5	0

Table 8 cont.

Item level alignment results for the easyCBM® fifth grade winter benchmark in mathematics.

Item	PS1	PS1 N	PS1 Ave N	PS1 Ave	PS2	PS2 N	PS2 Ave N	PS2 Ave	SS1	SS1 N	SS1 Ave N	SS1 Ave	SS2	SS2 N	SS2 Ave N	SS2 Ave	SS3	SS3 N	SS3 Ave N	SS3 Ave	Total n	Req Skills
28	5.MD.5	5	4	2																	5	0
29	5.MD.5	3	2	2					5.MD.3	1		2	NS	1		**					5	1
30	NS	3		**					5.NBT.6	1		2	4.NBT.6	1		2					5	2
31	5.NBT.7	3	2	1.5					NS	2		**									5	2
32	NS	3		**					5.NBT.6	1		2	4.NBT.6	1		2					5	2
33	NS	3		**					5.NBT.6	1		2	4.NBT.6	1		2					5	2
34	4.NF.6	4	3	1.67					5.NBT.3	1		2									5	0
35	4.NBT.6	4	3	1.33					5.NBT.6	1		2									5	0
36	NS	4		**					5.NBT.6	1		2									5	2
37	NS	3		**					5.NBT.6	1		2	4.NBT.6	1		2					5	1
38	NS	4		**					5.NBT.6	1		2									5	2
39	5.NBT.6	3	2	1.5					4.NBT.1	1		2	4.NBT.6	1		2					5	0
40	4.NBT.6	4	3	1.67					5.NBT.6	1		2									5	0
41	NS	4		**					5.NBT.6	1		2									5	2
42	NS	4		**					5.NBT.6	1		2									5	1
43	4.NBT.6	3	2	2					5.NBT.7	1		2	5.OA.2	1		1					5	0
44	4.NBT.6	4	3	1.67					5.NBT.6	1		2									5	0
45	4.NBT.6	3	2	1					5.NBT.6	1		2	4.NBT.2	1		1					5	0

Note. Items are labeled 1 to 45 based on their location in actual seasonal benchmark tests. For example, Item 1 in the Winter sheet, refers to the first test item on the winter benchmark for that grade. Unique CCSS standard identifiers are used in this table (e.g., 5NF.1), where the first number indicates grade level, the letter code refers to the grade-level domain (e.g., NF = Numbers and Operations - Fractions), and the last number refers to the standard number within a given domain. Please note that alignment ratings were not broken down by sub-standard (e.g., 5.NF.4a, 5.NF.4b).

When substandards were indicated by raters they were collapsed into the parent standard (e.g., 5.NF.4a, 5.NF.4b -> 5.NF.4).

When Total n is greater 5, Rater 1 Phase 1 chose multiple standards as being aligned to a given item.

PS1 = primary standard (standard with the most raters, out of 5, selecting it); PS2 - second primary standard (in cases where two primary standards were required); SS1 = secondary standard (a standard selected as being aligned by a smaller number of raters relative to primary PS1/PS2); N = number of raters selecting a given standard; Ave N = number of raters included in the Ave calculation; Ave = average alignment rating strength (calculated using a 3-point scale from 0 to 2); NS (alone) = no standard selected as being aligned; * = Standard selected by the Rater 1 Phase 1, where rating strength was not given; ** = NS selected without strength rating; *** = no chosen CCSS had a higher frequency count over another, thus, any standard indicated by a reviewer was deemed a secondary standard with a frequency count of 1; Req Skills = prerequisite skill alignment (when a given item was ranked as not aligned (NS) to any on- or prior-grade standard, was the item aligned to a prerequisite skill necessary for mastery).

Table 9 cont.

Item level alignment results for the easyCBM® fifth grade spring benchmark in mathematics.

Item	PS1	PS1 N	PS1 Ave	PS1 Ave	PS2	PS2 N	PS2 Ave	PS2 Ave	SS1	SS1 N	SS1 Ave	SS1 Ave	SS2	SS2 N	SS2 Ave	SS2 Ave	SS3	SS3 N	SS3 Ave	SS3 Ave	SS4	SS4 N	SS4 Ave	SS4 Ave	SS5	SS5 N	SS5 Ave	SS5 Ave	Total n	Req Skills
28	5.MD.5	3	2	2					5.MD.3	1	2		NS	1		**													5	1
29	5.MD.5	3	2	2					5.MD.3	1	2		NS	1		**													5	1
30	NS	4		**					4.MD.3	1	2																	5	2	
31	NS	2		**					5.MD.4	1	2		5.MD.5	1	2		4.NBT.1	1	2									5	1	
32	NS	3		**					5.MD.5	2	1.5																	5	2	
33	NS	3		**					4.MD.3	2	1.5																	5	2	
34	4.NBT.6	3	2	2					5.MD.5	2	1.5																	5	0	
35	5.MD.5	2		1.5	NS	2		**	4.NBT.6	1	2																	5	1	
36	NS	4		**					5.NBT.7	1	2																	5	3	
37	NS	4		**					5.NBT.1	1	2																	5	3	
38	NS	3		**					5.NBT.6	1	2		4.NBT.6	1	2													5	2	
39	4.NBT.6	3	2	2					5.NBT.6	1	2		NS	1		**												5	1	
40	4.NBT.6	3	2	1.5					5.NBT.6	1	2		NS	1		**												5	1	
41	NS	3		**					5.NBT.6	1	2		4.NBT.3	1	2													5	1	
42	5.NBT.6	2		2	NS	2		**	4.NBT.6	1	*																	5	2	
43	5.NBT.6	2		2	4.NBT.6	2	1	2	NS	1	**																	5	1	
44	5.NBT.4	2		1.5					5.NBT.6	1	2		4.NBT.6	1	1		5.NBT.7	1	*									5	0	
45	NS	3		**					5.NBT.6	1	2		4.NBT.6	1	1													5	2	

Note. Items are labeled 1 to 45 based on their location in actual seasonal benchmark tests. For example, Item 1 in the Spring sheet, refers to the first test item on the spring benchmark for that grade. Unique CCSS standard identifiers are used in this table (e.g., 5NF.1), where the first number indicates grade level, the letter code refers to the grade-level domain (e.g., NF = Numbers and Operations - Fractions), and the last number refers to the standard number within a given domain. Please note that alignment ratings were not broken down by sub-standard (e.g., 5.NF.4a, 5.NF.4b).

When substandards were indicated by raters they were collapsed into the parent standard (e.g., 5.NF.4a, 5.NF.4b -> 5.NF.4).

When Total n is greater 5, Rater 1 Phase 1 chose multiple standards as being aligned to a given item.

PS1 = primary standard (standard with the most raters, out of 5, selecting it); PS2 - second primary standard (in cases where two primary standards were required); SS1 = secondary standard (a standard selected as being aligned by a smaller number of raters relative to primary PS1/PS2); N = number of raters selecting a given standard; Ave N = number of raters included in the Ave calculation; Ave = average alignment rating strength (calculated using a 3-point scale from 0 to 2); NS (alone) = no standard selected as being aligned; * = Standard selected by the Rater 1 Phase 1, where rating strength was not given; ** = NS selected without strength rating; *** = no chosen CCSS had a higher frequency count over another, thus, any standard indicated by a reviewer was deemed a secondary standard with a frequency count of 1; Req Skills = prerequisite skill alignment (when a given item was ranked as not aligned (NS) to any on- or prior-grade standard, was the item aligned to a prerequisite skill necessary for mastery).

Appendix C

Table 1

CCSS level alignment results for the easyCBM® third grade fall benchmark in math.

Standard	# ps items	# sec items	Standard	# ps items	# sec items
2.G.1	5	7	3.OA.1	1	2
2.G.2		1	3.OA.2		5
2.G.3		1	3.OA.3	5	1
2.MD.1		1	3.OA.4		4
2.MD.2			3.OA.5	2	
2.MD.3			3.OA.6	3	
2.MD.4			3.OA.7	3	2
2.MD.5			3.OA.8		3
2.MD.6			3.OA.9	3	2
2.MD.7			3.NBT.1		
2.MD.8			3.NBT.2		
2.MD.9			3.NBT.3	1	
2.MD.10			3.NF.1	9	2
2.NBT.1			3.NF.2		1
2.NBT.2			3.NF.3	5	
2.NBT.3			3.MD.1		
2.NBT.4			3.MD.2		
2.NBT.5			3.MD.3		
2.NBT.6			3.MD.4		
2.NBT.7			3.MD.5		
2.NBT.8			3.MD.6		1
2.NBT.9			3.MD.7		
2.OA.1		2	3.MD.8	1	
2.OA.2		1	3.G.1	2	2
2.OA.3			3.G.2	1	14
2.OA.4					

Note. On- and prior-grade standards are labeled using the unique CCSS identification code. # ps items = the number of items identified as aligned as primary standard; # sec items = the number of items identified as aligned as secondary standard.

Table 2

CCSS domain and grade level alignment results for the easyCBM® third grade fall benchmark in math.

Domain	# ps items	# sec items	Domain	# ps items	# sec items
2.G	5	9	3.OA	17	19
2.MD	0	1	3.NBT	1	0
2.NBT	0	0	3.NF	14	3
2.OA	0	3	3.MD	1	1
			3.G	3	16
Grade 2	5	13	Grade 3	36	39

Note. On- and prior-grade domains are labeled using the unique CCSS identification code. # ps items = the number of items identified as aligned as primary standard to a given CCSS domain; # sec items = the number of items identified as aligned as secondary standard to that CCSS domain.

Table 3
CCSS level alignment results for the easyCBM® third grade winter benchmark in math.

Standard	# ps items	# sec items	Standard	# ps items	# sec items
2.G.1	5	7	3.OA.1	2	
2.G.2		3	3.OA.2	2	1
2.G.3		1	3.OA.3	1	5
2.MD.1			3.OA.4	2	4
2.MD.2			3.OA.5	4	1
2.MD.3			3.OA.6	2	3
2.MD.4		1	3.OA.7	1	3
2.MD.5			3.OA.8		
2.MD.6			3.OA.9		5
2.MD.7			3.NBT.1		
2.MD.8			3.NBT.2		
2.MD.9			3.NBT.3		
2.MD.10			3.NF.1	8	3
2.NBT.1			3.NF.2		3
2.NBT.2			3.NF.3	6	2
2.NBT.3			3.MD.1		
2.NBT.4			3.MD.2		
2.NBT.5			3.MD.3		
2.NBT.6			3.MD.4		
2.NBT.7			3.MD.5		
2.NBT.8			3.MD.6		
2.NBT.9			3.MD.7		
2.OA.1			3.MD.8	2	
2.OA.2			3.G.1		
2.OA.3			3.G.2		9
2.OA.4					

Note. On- and prior-grade standards are labeled using the unique CCSS identification code. # ps items = the number of items identified as aligned as primary standard; # sec items = the number of items identified as aligned as secondary standard.

Table 4
CCSS domain and grade level alignment results for the easyCBM® third grade winter benchmark in math.

Domain	# ps items	# sec items	Domain	# ps items	# sec items
2.G	5	11	3.OA	14	22
2.MD	0	1	3.NBT	0	0
2.NBT	0	0	3.NF	14	8
2.OA	0	0	3.MD	2	0
			3.G	0	9
Grade 2	5	12	Grade 3	30	39

Note. On- and prior-grade domains are labeled using the unique CCSS identification code. # ps items = the number of items identified as aligned as primary standard to a given CCSS domain; # sec items = the number of items identified as aligned as secondary standard to that CCSS domain.

Table 5
CCSS level alignment results for the easyCBM® third grade spring benchmark in math.

Standard	# ps items	# sec items	Standard	# ps items	# sec items
2.G.1	3	6	3.OA.1	4	4
2.G.2		2	3.OA.2		2
2.G.3	1		3.OA.3	2	5
2.MD.1			3.OA.4		1
2.MD.2			3.OA.5	3	
2.MD.3			3.OA.6		1
2.MD.4			3.OA.7	1	2
2.MD.5			3.OA.8	1	1
2.MD.6			3.OA.9	3	3
2.MD.7			3.NBT.1		
2.MD.8			3.NBT.2		
2.MD.9			3.NBT.3		
2.MD.10			3.NF.1	6	2
2.NBT.1			3.NF.2	1	3
2.NBT.2			3.NF.3	1	1
2.NBT.3			3.MD.1		
2.NBT.4			3.MD.2	1	
2.NBT.5			3.MD.3		
2.NBT.6			3.MD.4		
2.NBT.7			3.MD.5		
2.NBT.8			3.MD.6		
2.NBT.9			3.MD.7		
2.OA.1			3.MD.8		
2.OA.2			3.G.1		3
2.OA.3			3.G.2	1	8
2.OA.4					

Note. On- and prior-grade standards are labeled using the unique CCSS identification code. # ps items = the number of items identified as aligned as primary standard; # sec items = the number of items identified as aligned as secondary standard.

Table 6
CCSS domain and grade level alignment results for the easyCBM® third grade spring benchmark in math.

Domain	# ps items	# sec items	Domain	# ps items	# sec items
2.G	4	8	3.OA	14	19
2.MD	0	0	3.NBT	0	0
2.NBT	0	0	3.NF	8	6
2.OA	0	0	3.MD	1	0
			3.G	1	11
Grade 2	4	8	Grade 3	24	36

Note. On- and prior-grade domains are labeled using the unique CCSS identification code. # ps items = the number of items identified as aligned as primary standard to a given CCSS domain; # sec items = the number of items identified as aligned as secondary standard to that CCSS domain.

Table 7

CCSS level alignment results for the easyCBM® fourth grade fall benchmark in math.

Standard	# ps items	# sec items	Standard	# ps items	# sec items
3.OA.1	0	2	4.OA.1	0	1
3.OA.2			4.OA.2	1	4
3.OA.3	3	1	4.OA.3	0	3
3.OA.4			4.OA.4		
3.OA.5	1	0	4.OA.5	1	2
3.OA.6			4.NBT.1	0	1
3.OA.7	0	2	4.NBT.2	0	1
3.OA.8	0	2	4.NBT.3	0	1
3.OA.9	0	2	4.NBT.4		
3.NBT.1			4.NBT.5	3	0
3.NBT.2	0	1	4.NBT.6		
3.NBT.3	1	0	4.NF.1	1	0
3.NF.1	1	2	4.NF.2	0	1
3.NF.2			4.NF.3	1	0
3.NF.3	1	1	4.NF.4		
3.MD.1			4.NF.5		
3.MD.2			4.NF.6	2	6
3.MD.3	1	2	4.NF.7	1	1
3.MD.4			4.MD.1	0	3
3.MD.5	1	5	4.MD.2	10	6
3.MD.6	7	1	4.MD.3	1	2
3.MD.7	2	1	4.MD.4		
3.MD.8			4.MD.5		
3.G.1	0	2	4.MD.6		
3.G.2	0	3	4.MD.7	0	1
			4.G.1		
			4.G.2		
			4.G.3		

Note. On- and prior-grade standards are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard; # sec items = the number of items identified as aligned as secondary standard.

Table 8

CCSS domain and grade level alignment results for the easyCBM® fourth grade fall benchmark in math.

Domain	# ps items	# sec items	Domain	# ps items	# sec items
3.OA	4	9	4.OA	2	10
3.NBT	1	1	4.NBT	3	3
3.NF	2	3	4.NF	5	8
3.MD	11	9	4.MD	11	12
3.G	0	5	4.G	0	0
Grade 3	18	27	Grade 4	21	33

Note. On- and prior-grade domains are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard to a given CCSS domain; # sec items = the number of items identified as aligned as secondary standard to that CCSS domain.

Table 9

CCSS level alignment results for the easyCBM® fourth grade winter benchmark in math.

Standard	# ps items	# sec items	Standard	# ps items	# sec items
3.OA.1			4.OA.1		
3.OA.2			4.OA.2	0	1
3.OA.3			4.OA.3		
3.OA.4			4.OA.4		
3.OA.5			4.OA.5	1	6
3.OA.6			4.NBT.1	1	0
3.OA.7			4.NBT.2	1	2
3.OA.8			4.NBT.3		
3.OA.9	1	1	4.NBT.4		
3.NBT.1	0	1	4.NBT.5	6	1
3.NBT.2	0	1	4.NBT.6		
3.NBT.3			4.NF.1		
3.NF.1	1	0	4.NF.2		
3.NF.2	0	3	4.NF.3	0	1
3.NF.3			4.NF.4		
3.MD.1	0	1	4.NF.5		
3.MD.2	0	2	4.NF.6	4	4
3.MD.3	2	2	4.NF.7	3	0
3.MD.4			4.MD.1	0	1
3.MD.5	2	6	4.MD.2	7	4
3.MD.6	6	2	4.MD.3	2	1
3.MD.7	1	3	4.MD.4		
3.MD.8			4.MD.5		
3.G.1			4.MD.6		
3.G.2			4.MD.7		
			4.G.1		
			4.G.2		
			4.G.3		

Note. On- and prior-grade standards are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard; # sec items = the number of items identified as aligned as secondary standard.

Table 10

CCSS domain and grade level alignment results for the easyCBM® fourth grade winter benchmark in math.

Domain	# ps items	# sec items	Domain	# ps items	# sec items
3.OA	1	1	4.OA	1	7
3.NBT	0	2	4.NBT	8	3
3.NF	1	3	4.NF	7	5
3.MD	11	16	4.MD	9	6
3.G	0	0	4.G	0	0
Grade 3	13	22	Grade 4	25	21

Note. On- and prior-grade domains are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard to a given CCSS domain; # sec items = the number of items identified as aligned as secondary standard to that CCSS domain.

Table 11

CCSS level alignment results for the easyCBM® fourth grade spring benchmark in math.

Standard	# ps items	# sec items	Standard	# ps items	# sec items
3.OA.1	0	1	4.OA.1	0	1
3.OA.2			4.OA.2	0	4
3.OA.3	3	1	4.OA.3	0	1
3.OA.4	1	0	4.OA.4		
3.OA.5			4.OA.5	4	1
3.OA.6			4.NBT.1	0	1
3.OA.7			4.NBT.2	0	4
3.OA.8			4.NBT.3		
3.OA.9			4.NBT.4		
3.NBT.1			4.NBT.5	3	1
3.NBT.2	0	2	4.NBT.6		
3.NBT.3	1	0	4.NF.1	0	1
3.NF.1	1	1	4.NF.2		
3.NF.2	0	1	4.NF.3		
3.NF.3			4.NF.4	0	1
3.MD.1			4.NF.5		
3.MD.2			4.NF.6	4	4
3.MD.3	1	0	4.NF.7	2	2
3.MD.4			4.MD.1	0	2
3.MD.5	1	1	4.MD.2	7	6
3.MD.6	4	1	4.MD.3	1	7
3.MD.7	5	3	4.MD.4		
3.MD.8			4.MD.5		
3.G.1			4.MD.6		
3.G.2			4.MD.7		
			4.G.1		
			4.G.2		
			4.G.3	0	1

Note. On- and prior-grade standards are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard; # sec items = the number of items identified as aligned as secondary standard.

Table 12

CCSS domain and grade level alignment results for the easyCBM® fourth grade spring benchmark in math.

Domain	# ps items	# sec items	Domain	# ps items	# sec items
3.OA	4	2	4.OA	4	7
3.NBT	1	2	4.NBT	3	6
3.NF	1	2	4.NF	6	8
3.MD	11	5	4.MD	8	15
3.G	0	0	4.G	0	1
Grade 3	17	11	Grade 4	21	37

Note. On- and prior-grade domains are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard to a given CCSS domain; # sec items = the number of items identified as aligned as secondary standard to that CCSS domain.

Table 13

CCSS level alignment results for the easyCBM® fifth grade fall benchmark in math.

Standard	# ps items	# sec items	Standard	# ps items	# sec items
4.OA.1			5.OA.1		1
4.OA.2			5.OA.2		
4.OA.3			5.OA.3		
4.OA.4			5.NBT.1		2
4.OA.5			5.NBT.2		2
4.NBT.1		1	5.NBT.3		
4.NBT.2			5.NBT.4	1	1
4.NBT.3		2	5.NBT.5		
4.NBT.4			5.NBT.6	2	1
4.NBT.5			5.NBT.7	8	5
4.NBT.6	4	7	5.NF.1	8	1
4.NF.1			5.NF.2		2
4.NF.2		6	5.NF.3		
4.NF.3		5	5.NF.4		1
4.NF.4			5.NF.5		
4.NF.5			5.NF.6		1
4.NF.6			5.NF.7		2
4.NF.7			5.MD.1		
4.MD.1			5.MD.2		
4.MD.2			5.MD.3	2	7
4.MD.3	2	2	5.MD.4		3
4.MD.4			5.MD.5	1	3
4.MD.5			5.G.1		
4.MD.6			5.G.2		
4.MD.7			5.G.3		
4.G.1			5.G.4		
4.G.2					
4.G.3					

Note. On- and prior-grade standards are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard; # sec items = the number of items identified as aligned as secondary standard.

Table 14

CCSS domain and grade level alignment results for the easyCBM® fifth grade fall benchmark in math.

Domain	# ps items	# sec items	Domain	# ps items	# sec items
4.OA	0	0	5.OA	0	1
4.NBT	4	10	5.NBT	11	11
4.NF	0	11	5.NF	8	7
4.MD	2	2	5.MD	3	13
4.G	0	0	5.G	0	0
Grade 4	6	23	Grade 5	22	32

Note. On- and prior-grade domains are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard to a given CCSS domain; # sec items = the number of items identified as aligned as secondary standard to that CCSS domain.

Table 15

CCSS level alignment results for the easyCBM® fifth grade winter benchmark in math.

Standard	# ps items	# sec items	Standard	# ps items	# sec items
4.OA.1			5.OA.1		
4.OA.2			5.OA.2		1
4.OA.3			5.OA.3		
4.OA.4			5.NBT.1		1
4.OA.5			5.NBT.2		
4.NBT.1		1	5.NBT.3		1
4.NBT.2		1	5.NBT.4		3
4.NBT.3			5.NBT.5		
4.NBT.4			5.NBT.6	1	12
4.NBT.5			5.NBT.7	6	1
4.NBT.6	5	5	5.NF.1	2	1
4.NF.1	1	3	5.NF.2	2	
4.NF.2	1	2	5.NF.3		
4.NF.3	3	1	5.NF.4		
4.NF.4			5.NF.5		1
4.NF.5			5.NF.6	1	
4.NF.6	1		5.NF.7		
4.NF.7			5.MD.1		
4.MD.1	1		5.MD.2		
4.MD.2			5.MD.3	2	6
4.MD.3		1	5.MD.4	1	2
4.MD.4			5.MD.5	7	2
4.MD.5			5.G.1		
4.MD.6			5.G.2		
4.MD.7			5.G.3		
4.G.1			5.G.4		
4.G.2					
4.G.3					

Note. On- and prior-grade standards are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard; # sec items = the number of items identified as aligned as secondary standard.

Table 16

CCSS domain and grade level alignment results for the easyCBM® fifth grade winter benchmark in math.

Domain	# ps items	# sec items	Domain	# ps items	# sec items
4.OA	0	0	5.OA	0	1
4.NBT	5	7	5.NBT	7	18
4.NF	6	6	5.NF	5	2
4.MD	1	1	5.MD	10	10
4.G	0	0	5.G	0	0
Grade 4	12	14	Grade 5	22	31

Note. On- and prior-grade domains are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard to a given CCSS domain; # sec items = the number of items identified as aligned as secondary standard to that CCSS domain.

Table 17

CCSS level alignment results for the easyCBM® fifth grade spring benchmark in math.

Standard	# ps items	# sec items	Standard	# ps items	# sec items
4.OA.1			5.OA.1		1
4.OA.2			5.OA.2		
4.OA.3			5.OA.3		
4.OA.4			5.NBT.1		2
4.OA.5			5.NBT.2		2
4.NBT.1		1	5.NBT.3		
4.NBT.2			5.NBT.4	1	1
4.NBT.3		2	5.NBT.5		
4.NBT.4			5.NBT.6	2	1
4.NBT.5			5.NBT.7	8	5
4.NBT.6	4	7	5.NF.1	8	1
4.NF.1			5.NF.2		2
4.NF.2		6	5.NF.3		
4.NF.3		5	5.NF.4		1
4.NF.4			5.NF.5		
4.NF.5			5.NF.6		1
4.NF.6			5.NF.7		2
4.NF.7			5.MD.1		
4.MD.1			5.MD.2		
4.MD.2			5.MD.3	2	7
4.MD.3	2	2	5.MD.4		3
4.MD.4			5.MD.5	1	3
4.MD.5			5.G.1		
4.MD.6			5.G.2		
4.MD.7			5.G.3		
4.G.1			5.G.4		
4.G.2					
4.G.3					

Note. On- and prior-grade standards are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard; # sec items = the number of items identified as aligned as secondary standard.

Table 18

CCSS domain and grade level alignment results for the easyCBM® fifth grade spring benchmark in math.

Domain	# ps items	# sec items	Domain	# ps items	# sec items
4.OA	0	0	5.OA	0	1
4.NBT	4	10	5.NBT	11	11
4.NF	0	11	5.NF	8	7
4.MD	2	2	5.MD	3	13
4.G	0	0	5.G	0	0
Grade 4	6	23	Grade 5	22	32

Note. On- and prior-grade domains are labeled using the unique CCSS identification code.

ps items = the number of items identified as aligned as primary standard to a given CCSS domain; # sec items = the number of items identified as aligned as secondary standard to that CCSS domain.