

easyCBM® 6-8 Math Alignment to the CCSS

B. Jasmine Park, P. Shawn Irvin, Julie Alonzo, & Gerald Tindal

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Study Purpose

- 1) To study the alignment between existing easyCBM® 6-8 mathematics assessments and the Common Core State Standards (CCSS)
- 2) To strengthen CCSS-easyCBM® alignment, bolstering existing assessments to enhance the validity of score interpretations and instructional decisions made in response to student performance. (e.g., RTI)

Background

- CCSS provide a unified set of expectations for student knowledge and skill development
 - CCSS guide instruction and assessment
 - Alignment studies have focused primarily on accountability assessments (e.g., Webb 1999, Achieve, 2002)
 - Formative Assessment (i.e., easyCBM®):
 - Measure student progress (i.e., growth)
 - Guide instructional decision-making
 - Aid in the identification of students in need of additional services above/outside typical instruction
 - Instruction and assessment form an integrated and ongoing process within the standards-based instructional cycle
- ∴ CCSS, pre-requisite knowledge/skills, and formative assessment must be aligned for teachers to make valid test-based inferences and appropriate instructional decisions tied to student performance and academic needs.

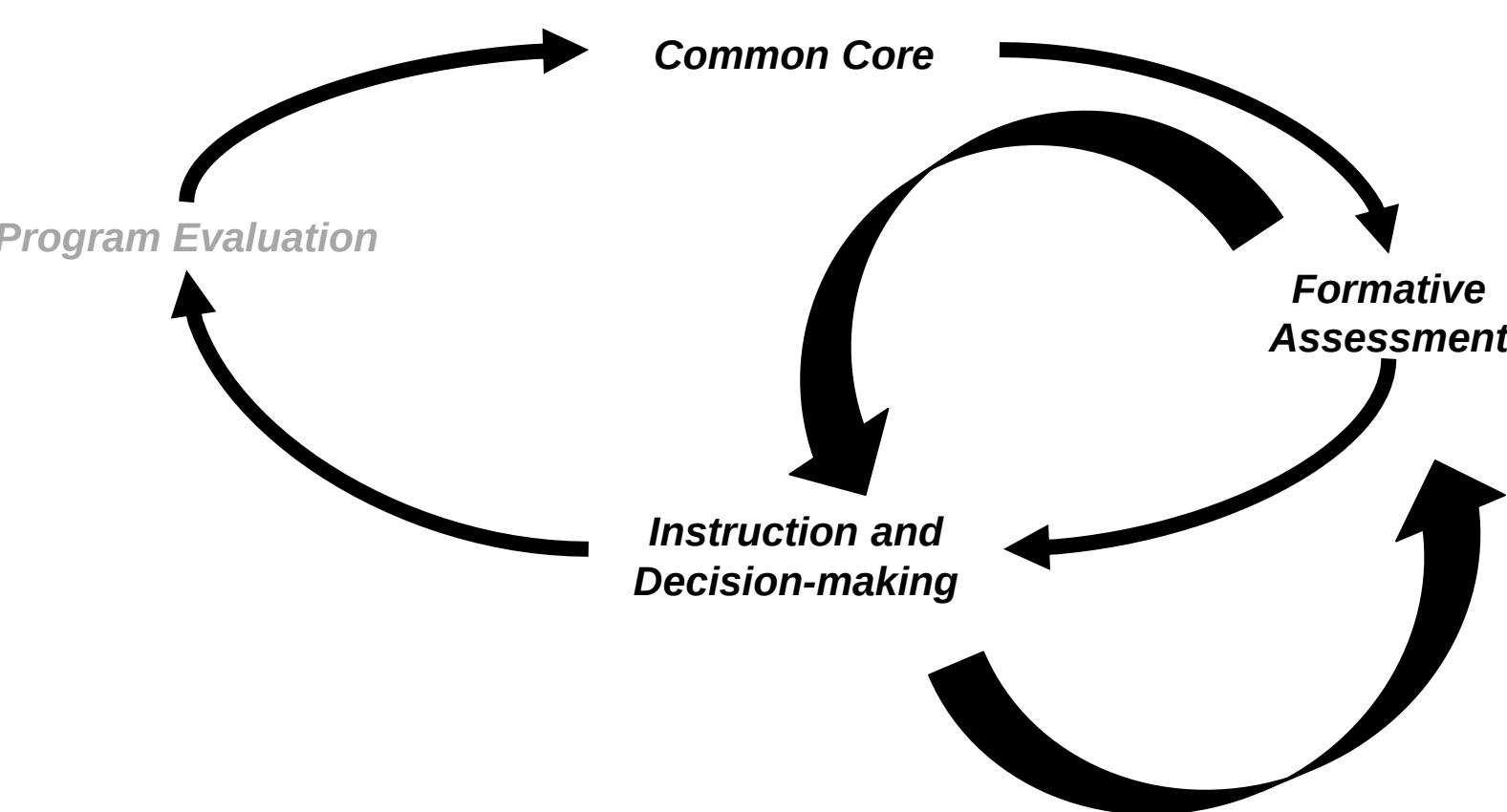


Diagram adapted from Scalise (2012)

Funding Source

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 The opinions expressed are those of the authors and do not represent views of the Institute for Education Sciences or the U.S. Department of Education.

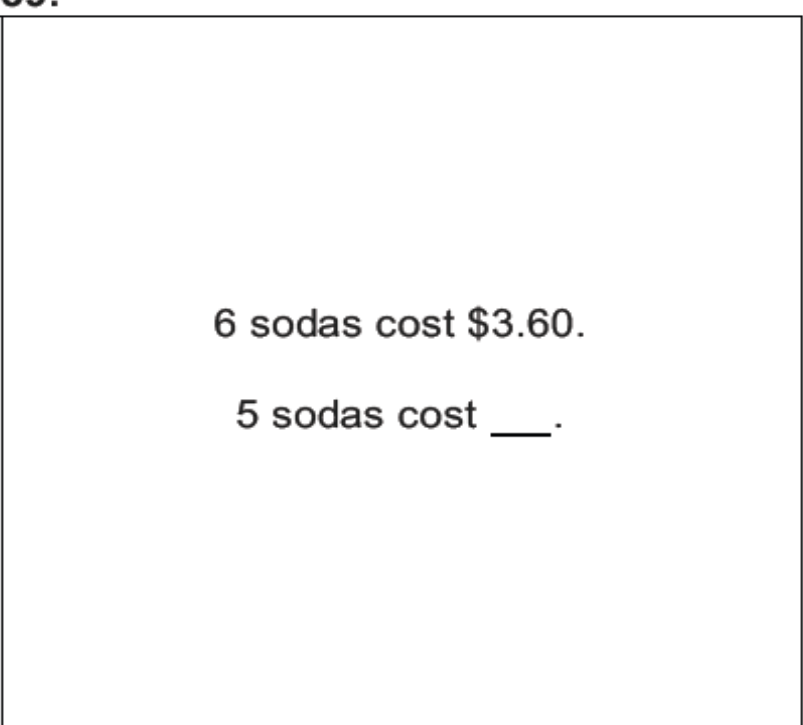
For further information

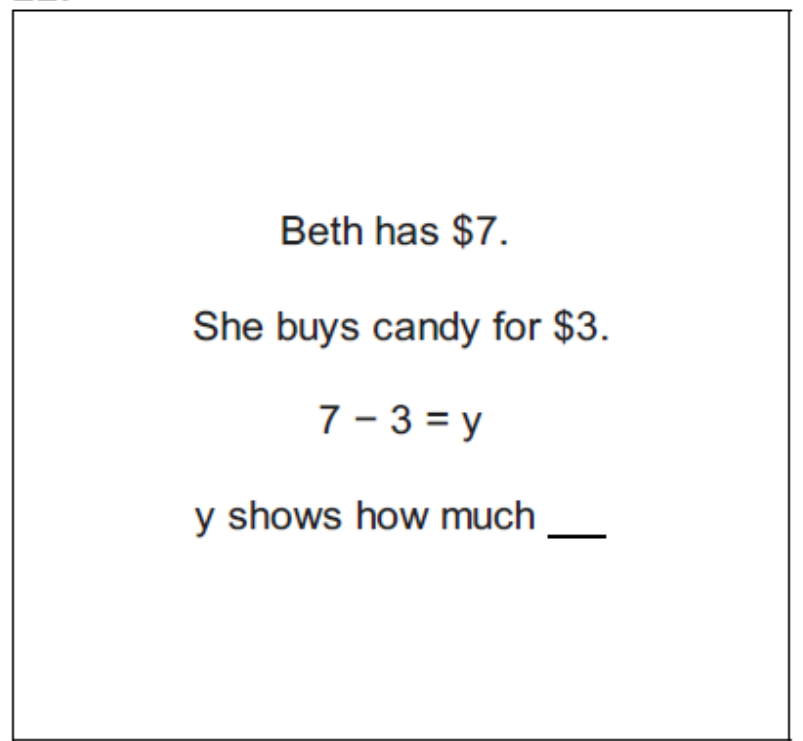
Please contact **Jasmine Park**, at parkbitnara@gmail.com. More information on this and current assessment development projects can be obtained at <http://www.brtprojects.org/>.

Methods

- **Participants:** 15 teachers/district leaders, 7 states, teaching experience: *Mean* = 8.9 years, *Range* = 1-21 years
- **Design:** 135 seasonal benchmark items analyzed for alignment to on- and prior-grade CCSS, and standard pre-requisite skill sets
- **Strength of alignment rating scale:** 3-point Likert (0-2), where 0 = not at all linked, 1 = somewhat linked, 2 = directly linked

Item Sample – Ratings

Standard Level Agreement		
39.  A. \$2.40 B. \$3.00 C. \$2.20	Rater	Rating (Strength)
	Rater 1	6.RP.3 (1)
	Rater 2	6.RP.3 (2)
	Rater 3	6.RP.3 (2)
	Rater 4	6.RP.3 (2)
	Rater 5	6.RP.3
6.RP.3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.		

Domain Level Agreement		
22.  A. \$ Beth has left B. \$ Beth spends C. \$ the candy costs	Rater	Rating (Strength)
	Rater 1	6.EE.6 (2)
	Rater 2	6.EE.2 (2)
	Rater 3	6.EE.2 (1)
	Rater 4	6.EE.7 (2)
	Rater 5	6.EE.6

6.EE.2. Write, read, and evaluate expressions in which letters stand for numbers.

6.EE.6. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

6.EE.7. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers.

Results

Table 1. Grade 6 Results

On Grade					Prior Grade				
Domain (# of Stnd)	Total # Stnd addressed (%)	Fall # Stnd addressed (%)	Winter # Stnd addressed (%)	Spring # Stnd addressed (%)	Domain (# of Stnd)	Total # Stnd addressed (%)	Fall # Stnd addressed (%)	Winter # Stnd addressed (%)	Spring # Stnd addressed (%)
6.RP (3)	3 (100%)	3 (100%)	3 (100%)	3 (100%)	5.OA (3)	3 (100%)	0 (0%)	3 (100%)	2 (67%)
6.NS (8)	3 (38%)	2 (25%)	2 (25%)	2 (25%)	5.NBT (7)	4 (57%)	3 (43%)	2 (29%)	4 (57%)
6.EE (9)	8 (89%)	88 (89%)	7 (78%)	7 (78%)	5.NF (7)	7 (100%)	6 (86%)	5 (71%)	6 (86%)
6.G (4)	3 (75%)	3 (75%)	0 (0%)	3 (78%)	5.G (4)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
6.SP (5)	2 (40%)	2 (40%)	1 (20%)	2 (40%)	5.MD (5)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Gr6 total (29)	19 (66%)	18 (62%)	13 (45%)	17 (59%)	Gr5 total (26)	14 (54%)	9 (35%)	10 (38%)	12 (46%)

Table 2. Grade 7 Results

On Grade					Prior Grade				
Domain (# of Stnd)	Total # Stnd addressed (%)	Fall # Stnd addressed (%)	Winter # Stnd addressed (%)	Spring # Stnd addressed (%)	Domain (# of Stnd)	Total # Stnd addressed (%)	Fall # Stnd addressed (%)	Winter # Stnd addressed (%)	Spring # Stnd addressed (%)
7.RP (3)	3 (100%)	2 (67%)	2 (67%)	3 (100%)	6.RP (3)	3 (100%)	2 (67%)	3 (100%)	3 (100%)
7.NS (3)	3 (100%)	2 (67%)	3 (100%)	3 (100%)	6.NS (8)	3 (38%)	3 (38%)	2 (25%)	2 (25%)
7.EE (4)	3 (75%)	2 (50%)	2 (50%)	3 (75%)	6.EE (9)	6 (67%)	2 (22%)	4 (44%)	2 (22%)
7.G (6)	3 (50%)	3 (50%)	3 (50%)	3 (50%)	6.G (4)	2 (50%)	1 (25%)	0 (0%)	2 (50%)
7.SP (8)	3 (38%)	2 (25%)	2 (25%)	3 (38%)	6.SP (5)	1 (20%)	1 (20%)	0 (0%)	0 (0%)
Gr7 total (24)	15 (63%)	11 (46%)	12 (50%)	15 (63%)	Gr6 total (29)	15 (52%)	9 (31%)	9 (31%)	9 (31%)

Table 3. Grade 8 Results

On Grade					Prior Grade				
Domain (# of Stnd)	Total # Stnd addressed (%)	Fall # Stnd addressed (%)	Winter # Stnd addressed (%)	Spring # Stnd addressed (%)	Domain (# of Stnd)	Total # Stnd addressed (%)	Fall # Stnd addressed (%)	Winter # Stnd addressed (%)	Spring # Stnd addressed (%)
8.F (5)	5 (100%)	4 (80%)	3 (60%)	5 (100%)	7.RP (3)	1 (33%)	1 (33%)	1 (33%)	0 (0%)
8.NS (2)	1 (50%)	0 (0%)	0 (0%)	1 (50%)	7.NS (3)	1 (33%)	0 (0%)	1 (33%)	0 (0%)
8.EE (8)	4 (50%)	4 (50%)	2 (25%)	3 (38%)	7.EE (4)	2 (50%)	2 (50%)	2 (50%)	1 (25%)
8.G (9)	6 (67%)	4 (44%)	3 (33%)	5 (56%)	7.G (6)	5 (83%)	3 (50%)	3 (50%)	5 (83%)
8.SP (4)	2 (50%)	1 (25%)	1 (25%)	2 (50%)	7.SP (8)	3 (38%)	2 (25%)	2 (25%)	3 (38%)
Gr8 total (28)	18 (64%)	13 (46%)	12 (43%)	16 (57%)	Gr7 total (24)	12 (50%)	8 (33%)	9 (38%)	9 (38%)

Future Directions – Assessment Development

- CCSS Math benchmark and progress monitoring assessments for grades 6-8 were released in fall 2012 for district easyCBM® users (Anderson, Irvin, Patarapichayatham, Alonzo & Tindal, 2012). Current findings supplement these efforts and subsequent alignment results from Anderson, Irvin, Alonzo and Tindal (2012).
- Current easyCBM® assessment development in grades 6-8 is focused on supplementing the recently released CCSS Math with CCSS-aligned items from the current study, with piloting and scaling to occur in Spring 2013, and a release of new assessments for school year 2013-2014. Results will strengthen CCSS alignment and improve the validity of score interpretation and associated instructional decision-making within the context of school improvement efforts (e.g., RTI).

References

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