

# Summer Assessment Institute - August 2015

## Shannon McCaw - SMc Curriculum

### Grades 3-5 Math SBAC Scores are IN! Now What??

August 6, 2015  
Shannon McCaw  
SMc Curriculum  
[mccaws@smccurriculum.com](mailto:mccaws@smccurriculum.com)

### How well did you do?

Name	Number of Students	Average Scale Score	Percent Proficient	Percent at Each Achievement Level
State of Oregon	35899	2567 :11	31	42 18 25 15
Sample	XXX	2587 :11	21	43 20 21

### What scores did you have to get to "pass"?

Math	Level 1		Level 2		Level 3		Level 4
	Below and To	From	To	From	To	From and Above	
3	2380	2381	2435	2436	2500	2501	
4	2410	2411	2484	2485	2548	2549	
5	2454	2455	2527	2528	2578	2579	
6	2472	2473	2551	2552	2609	2610	
7	2483	2484	2566	2567	2634	2635	
8	2503	2504	2585	2586	2652	2653	
11	2542	2543	2627	2628	2717	2718	

Adapted Nov. 14, 2014 by Smarter Balanced Assessment Consortium

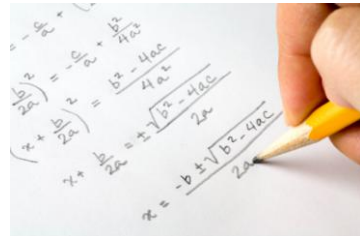
### How Claim Scores are Reported

Name	Number of Students	Average Scale Score	Percent Proficient	Claims	Percentage in Each Claim Performance Level
State of Oregon	35899	2567 :11	31	<b>Mathematics</b> Concepts and Procedures Problem Solving and Modeling & Data Analysis Communicating Reasoning	20 11 34 31 26 33 28 26 34 31
Sample Data	XX	2587 :11	21	<b>Mathematics</b> Concepts and Procedures Problem Solving and Modeling & Data Analysis Communicating Reasoning	21 11 21 21 24 25 26 34 31

What are two to three observations you can make about "Sample Data"?  
If this were your school, would you be surprised?

### Claim 1: Concepts and Procedures

Students can explain and apply mathematical concepts and interpret and carry out mathematical procedures with precision and fluency.



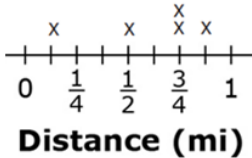
### Target/Cluster Level Information

Icon	Content Standard/Target Level	Description
+	Better than performance on the test as a whole	This content standard/target is a relative strength. The group of students performed better on items from this content standard/target than they did on the rest of the test as a whole.
=	Similar to performance on the test as a whole	This content standard/target is neither a relative strength nor a relative weakness. The group of students performed about as well on items from this content standard/target as they did on the rest of the test as a whole.
-	Worse than performance on the test as a whole	This content standard/target is a relative weakness. The group of students did not perform as well on items from this content standard/target as they did on the rest of the test as a whole.
*	Too Few Items or Too Few Students/Insufficient Information	Not enough information is available to determine whether this content standard/target is a relative strength or weakness.

Target	Performance Level
<b>Concepts and Procedures</b>	
Write and interpret numerical expressions.	=
Analyze patterns and relationships.	+
Understand the place value system.	=
Perform operations with multi-digit whole numbers and with decimals to hundredths.	=
Use equivalent fractions as a strategy to add and subtract fractions.	-
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	=
Convert like measurement units within a given measurement system.	=
Represent and interpret data.	-
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	=
Graph points on the coordinate plane to solve real-world and mathematical problems.	=
Classify two-dimensional figures into categories based on their properties.	=

## Target H: Represent and interpret data.

The line plot shows the distance, in miles, that five students ran in a race. Enter the total distance, in miles, these students ran in the race.



## Target E: Use equivalent fractions as a strategy to add or subtract fractions.

Which expression is equivalent to  $2 - \frac{1}{3} + \frac{2}{5}$ ?

- A.  $\frac{2}{15} - \frac{1}{15} + \frac{2}{15}$
- B.  $\frac{2}{15} - \frac{5}{15} + \frac{6}{15}$
- C.  $\frac{17}{15} - \frac{7}{15} + \frac{8}{15}$
- D.  $\frac{30}{15} - \frac{5}{15} + \frac{6}{15}$

## What do we do if our Claim 1 scores are low?

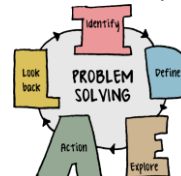


- Compare your curriculum maps to the priority clusters (SBAC Blueprints).
- Look at SBAC item specifications to see sample questions, compare level of rigor, and vocabulary. ([www.smarterbalanced.org/smarter-balanced-assessments](http://www.smarterbalanced.org/smarter-balanced-assessments))
- Determine how/when productive fluency practice in classroom can occur so that it does not supplant core instruction.
- Consider ways to spiral priority cluster practice throughout the school year.

## Claim 2/4: Problem Solving and Modeling & Data Analysis

Students can solve a range of complex well-posed problems in pure and applied mathematics, making productive use of knowledge and problem solving strategies.

Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems.



## CAT Test Computer **ADAPTIVE** Test

Approximately **eighteen** grade-level concept and procedure items (Claim 1)

**SIX** problem-solving items  
(grade-level based on Claim 1 success)  
(Claim 2 & 4)

**EIGHT** communicating reasoning  
(grade-level based on Claim 1 success)  
(Claim 3)

## Claim 2/4 Stats

- Approximately **six** adaptive items on the CAT portion of SBAC.
- Each student will receive at least 2 Claim 2 CAT items at DOK 3 or higher.
- Majority (4 out of 6 items) of Performance Task falls into this category.



### Grade 3 Problem-Solving

There are 123 girls and 135 boys in the third grade at a school. Today there are a total of 9 third grade students absent. Write an equation that can be used to find the total number of third grade students ( $s$ ) in school today.

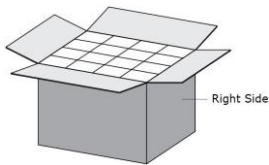
### Grade 4 Problem-Solving

Drag one number into each box to complete the subtraction problem shown.

$$\begin{array}{r} 50\boxed{6} \\ - \boxed{4}8\boxed{8} \\ \hline 16\boxed{8} \end{array}$$

### Grade 5 Problem-Solving

A rectangular box is filled with 48 same-sized cubes. Julie opens the top of the box and sees 16 cubes. Julie closes the top and then opens the right side of the box. How many cubes should she see? Enter your answer in the response box.



### What do we do if our Claim 2/4 scores are low?



- Give students strategies for persevering in problem-solving.
- Embed authentic “word problems” in your curriculum.
- Allow students to build confidence in problem-solving by working problems that include math they can access.
- Spiral tasks that do not just use the most recently learned concepts.
- Be cognizant of including higher depth of knowledge items in students’ activities and assignments.

### Claim 3: Communicating Reasoning

Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.

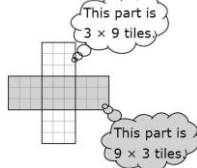


### Claim 3 Stats

- Approximately eight adaptive items on the CAT portion of SBAC.
- Each student will receive at least 2 Claim 2 CAT items at DOK 3 or higher.
- CAT items may be at and/or below grade-level.
- One-third (2 out of 6 items) of Performance Task falls into this category.
- Far less “textbox” writing items than we were originally told there would be (NONE on the CAT and up to 4 total items on PT)

## Grade 3 Communicating Reasoning

Tasha is doing an art project with square tiles. This picture shows her design. Tasha thinks:



Tasha says, "I need  $(3 \times 9) + (9 \times 3) = 27 + 27 = 54$  tiles to make the design." Which statement explains why Tasha is **not** correct?

- A.  $27 + 27$  does not equal 54.
- B.  $(3 \times 9)$  does not equal  $(9 \times 3)$ .
- C. Tasha multiplied  $9 \times 3$  incorrectly.
- D. Tasha included the 9 squares in the middle twice.

## Grade 4 Communicating Reasoning

Drag numbers into the boxes to make each statement true. You may use numbers more than once.

$$5 \times \frac{\square}{\square} > 5$$

$$5 \times \frac{\square}{\square} < 5$$

$$5 \times \frac{\square}{\square} = 5$$

## Grade 5 Communicating Reasoning

William used 6 squares to make the figure shown.



He claims that he can **add exactly 1 more** square to this shape to:

- Part A:** increase the perimeter.
- Part B:** decrease the perimeter.
- Part C:** keep the perimeter the same as the original perimeter.

**Part A:** Click to add 1 square to **increase** the perimeter.



**Part B:** Click to add 1 square to **decrease** the perimeter.



**Part C:** Click to add 1 square to **keep the perimeter the same**.



## What do we do if our Claim 3 scores are low?



- Structure lesson plans to include prompts that ask students to explain or critique.
- Determine if assessments, classroom assignments and/or activities include a variety of styles of Communicating Reasoning items. If not, adjust accordingly.
- Use sentence frames to help students know how to construct explanations and critiques.
- Have students practice constructing arguments using accessible mathematics.

## Individual Student Data

- Not meant to be used for student-specific prescribed instruction (summative data)
- Use data to look for trends in student strengths and weaknesses.

Scale Score	Assessment Level	Concepts and Procedures Performance Level	Problem Solving and Reasoning & Data Analysis Performance Level	Communicating Reasoning Performance Level
2439 (1)	1	⚠️	⚠️	⚠️
2688 (1)	1	⚠️	⚠️	⚠️
2684 (1)	2	⚠️	⚠️	⚠️
2632 (1)	3	⚠️	⚠️	⚠️
2687 (1)	2	⚠️	⚠️	⚠️
2688 (1)	1	⚠️	⚠️	⚠️
2642 (1)	1	⚠️	⚠️	⚠️
2421 (1)	1	⚠️	⚠️	⚠️
2692 (1)	2	⚠️	⚠️	⚠️
2687 (1)	1	⚠️	⚠️	⚠️
2679 (1)	2	⚠️	⚠️	⚠️
2634 (1)	3	⚠️	✅	⚠️
2677 (1)	2	⚠️	✅	⚠️
2684 (1)	3	⚠️	✅	✅

## Contact Information

Shannon McCaw, SMc Curriculum

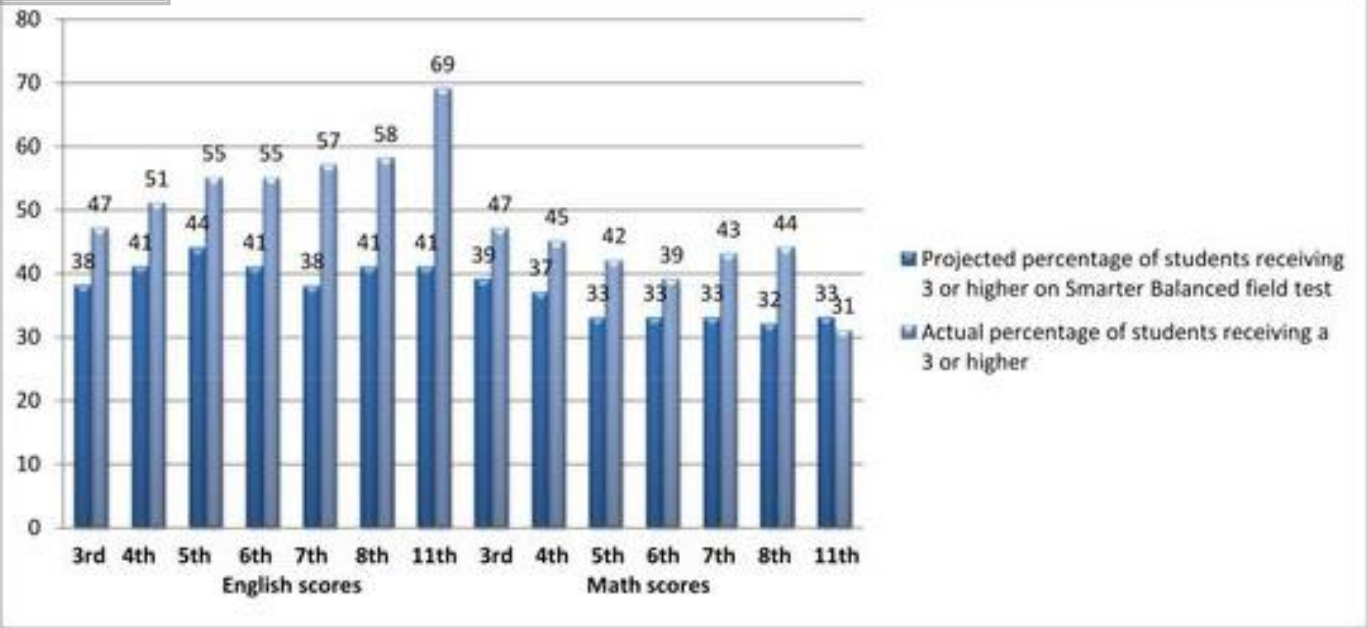
mccaws@smccurriculum.com

503-550-4298

800-708-5259



**Table A**



**Table B**

Name	Number of Students	Average Scale Score	Percent Proficient	Percent at Each Achievement Level
State of Oregon	35809	2567 ±1	31	42   27   19   12
Sample	XXX	2557 ±21	21	43   36   21

**Table C**

Math	Level 1		Level 2		Level 3		Level 4
	Below and To	From	To	From	To	From and Above	
3	2380	2381	2435	2436	2500	2501	
4	2410	2411	2484	2485	2548	2549	
5	2454	2455	2527	2528	2578	2579	
6	2472	2473	2551	2552	2609	2610	
7	2483	2484	2566	2567	2634	2635	
8	2503	2504	2585	2586	2652	2653	
11	2542	2543	2627	2628	2717	2718	

Adopted Nov. 14, 2014 by Smarter Balanced Assessment Consortium

**Table D**

Name	Number of Students	Average Scale Score	Percent Proficient	Claims	Percentage in Each Claims Performance Level
State of Oregon	35809	2567 ±1	31	<b>Mathematics</b>	
				Concepts and Procedures	51 32 17
				Problem Solving and Modeling & Data Analysis	28 53 19
				Communicating Reasoning	29 56 15
<a href="#">Sample Data</a>	XX	2557 ±21	21	<b>Mathematics</b>	
				Concepts and Procedures	71 29
				Problem Solving and Modeling & Data Analysis	14 64 21
				Communicating Reasoning	43 50 7

**Table E**

Icon	Content Standard/Target Level	Description
	Better than performance on the test as a whole	This content standard/target is a relative strength. The group of students performed better on items from this content standard/target than they did on the rest of the test as a whole.
	Similar to performance on the test as a whole	This content standard/target is neither a relative strength nor a relative weakness. The group of students performed about as well on items from this content standard/target as they did on the rest of the test as a whole.
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*	Too Few Items or Too Few Students/Insufficient Information	Not enough information is available to determine whether this content standard/target is a relative strength or weakness.

**Table F**

Target	Performance Level
<b>Concepts and Procedures</b>	
Write and interpret numerical expressions.	
Analyze patterns and relationships.	
Understand the place value system.	
Perform operations with multi-digit whole numbers and with decimals to hundredths.	
Use equivalent fractions as a strategy to add and subtract fractions.	
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	
Convert like measurement units within a given measurement system.	
Represent and interpret data.	
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	
Graph points on the coordinate plane to solve real-world and mathematical problems.	
Classify two-dimensional figures into categories based on their properties.	



**Table G**

Target Sampling Mathematics Grade 4						
Claim	Content Category	Assessment Targets	DOK	Items		Total Items
				CAT	PT	
1. Concepts and Procedures	Priority Cluster	A. Use the four operations with whole numbers to solve problems.	1, 2	8-9	0	17-20
		E. Use place value understanding and properties of operations to perform multi-digit arithmetic.	1, 2			
		F. Extend understanding of fraction equivalence and ordering.	1, 2			
		G. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	1, 2	2-3		
		D. Generalize place value understanding for multi-digit whole numbers.	1, 2	1-2		
		H. Understand decimal notation for fractions, and compare decimal fractions.	1, 2	1		
	Supporting Cluster	I. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	1, 2	2-3		
		K. Geometric measurement: understand concepts of angle and measure angles.	1, 2			
		B. Gain familiarity with factors and multiples.	1, 2	1		
		C. Generate and analyze patterns.	2, 3			
		J. Represent and interpret data.	1, 2			
		L. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	1, 2	1		

**Table H**

Scale Score	Achievement Level	Concepts and Procedures Performance Level	Problem Solving and Modeling & Data Analysis Performance Level	Communicating Reasoning Performance Level
2459 ±44	1	⚠	⊖	⚠
2508 ±39	1	⚠	⊖	⚠
2584 ±30	2	⊖	⊖	⊖
2632 ±26	3	⊖	⊖	⊖
2607 ±32	2	⚠	⊖	⊖
2500 ±39	1	⚠	⊖	⚠
2542 ±34	1	⚠	⊖	⊖
2421 ±54	1	⚠	⚠	⚠
2582 ±32	2	⚠	⊖	⊖
2457 ±48	1	⚠	⚠	⚠
2619 ±28	2	⊖	✓	⊖
2634 ±26	3	⚠	✓	⊖
2577 ±31	2	⚠	✓	⚠
2684 ±29	3	⊖	⊖	✓

Student Names would appear here.