

6th Grade Math
Claim, Target, Standard Matrix (30 CAT & 6 PT Items)
Compiled by Sandy Sanford 2-10-15

This Matrix Covers ALL Claims, Targets, & Standards taught in 6th Gd Math that are shown as “Tested” on Smarter Balanced Item Specifications (2-4-14) & the Blueprint (4-21-14)
The 6th Grade Summative Assessment has 30 CAT & 6 PT Items

Background: Smarter Balanced publishes mountains of specification information regarding Summative Assessment (SA) Claims, Targets, Standards, DOK, & Item Types/Numbers. The problem is that no published document welds together all this information in a format friendly to educators. The CTS Matrix solves that problem by populating the rows and columns in a table that emulates the design configuration of the SA.

Matrix Guide: Use the Matrix as a resource document to acquire greater understanding of the organization and composition of the Summative Assessment (SA), which is more complicated in design than previous high-stakes assessments. The four Claims are general descriptions regarding learning expectations for each grade level. In the Matrix, each Claim is displayed in a separate table with a description in the top row followed by multiple Targets underneath the parent Claim. The Targets are more specific with regard to expected learning and usually vary in description at each grade level. The SA will report results overall and for each of the four Claims.

For any Claim/Target combination, cells to the right show the tested standards, the assessed DOK level(s), the number of items tested (both Computer Adaptive Test (CAT) & Performance Task (PT)), and the Item Types that may be used. Note that each Target will normally involve testing multiple standards, and any particular standard may be tested in multiple Claims and/or Targets. A section titled “Valuable Facts” follows the conclusion of the Matrix with additional pertinent information about the SA. The final pages of this document contain examples of the different Item Types.

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I have tried hard to make this Matrix as accurate as possible, but I'm not infallible and the information is complicated and constantly changing. I will continuously review the available sources and make corrections/updates as required and distribute the corrected Matrices with new dates. If you notice errors, please report them to me at sandy@youasksandy.com.

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6th Grade Math Standards Domain Abbreviations

Ratios & Proportional Relationships = RP

Number System = NS

Expressions & Equations = EE

Geometry = G

Statistics & Probability = SP

Item Response Type Abbreviations

(Many examples of each Item Response Type are included in the Item Specifications)

MC = multiple-choice, single correct response

MS = multiple-choice, multiple choice responses

EQ = equation/numeric

TM = matching tables

TI = fill-in table

DD = drag & drop

HS = hot spot

GR = graphing

ST = short text

PT = performance task

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Claim 1: CONCEPTS and PROCEDURES—Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency (20 CAT Items)				
Claim 1 PRIORITY CLUSTER Targets (14 CAT Items)	Standards Addressed	DOK	CAT Items	Item Types
Target E —Apply and extend previous understandings of arithmetic to algebraic expressions.	6.EE.1, 2, 3, 4	1	6	MC, EQ, DD
Target F —Reason about and solve one-variable equations and inequalities.	6.EE.5, 6, 7, 8	1, 2		MC, MS, DD, MQ, TM
Target A —Understand ratio concepts and use ratio reasoning to solve problems.	6.RP.1, 2, 3	1, 2	4	MC, EQ, TI, GR, TM
Target G —Represent and analyze quantitative relationships between dependent and independent variables.	6.EE.9	2	2	MC, MS, EQ, TM, TI
Target B —Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	6.NS.1	1, 2		MC, DD, EQ
Target D —Apply and extend previous understandings of numbers to the system of rational numbers.	6.NS.5, 6, 7, 8	1, 2	2	MC, MS, EQ, TM, DD, GR, HS
Claim 1 Supporting CLUSTER Targets (5 CAT Items)	Standards Addressed	DOK	CAT Items	Item Types
Target C —Compute fluently with multi-digit numbers and find common factors and multiples.	6.NS.2, 3, 4	1, 2	5	EQ
Target H —Solve real-world and mathematical problems involving area, surface area, and volume.	6.G.1, 2, 3, 4	1, 2		EQ, GR
Target I —Develop an understanding of statistics variability.	6.SP.1, 2, 3	2		MC, TM
Target J —Summarize and describe distributions.	6.SP.4, 5	1, 2		MC, MS, EQ, DD, HS, TM

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Claim 2: PROBLEM SOLVING—Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies.					
Claim 4: MODELING AND DATA ANALYSIS—Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems.					
CLAIMS 2 & 4 are combined for reporting purposes (5 CAT & 4 PT Items)					
Claim 2: PROBLEM SOLVING (2 CAT & 1-2 PT Items)	Standards Addressed¹	DOK	CAT Items	PT Items	Item Types
Target A—Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	6.RP.1, 2, 3 6.NS.1, 5, 6, 7, 8 6.EE.1, 2, 3, 4, 5, 6, 7, 8, 9 6.G.1, 2, 3, 4	2, 3	1	1-2	MC, MS, EQ, DD, HS, GR, TM, TI
Target B—Select and use appropriate tools strategically		1, 2, 3	1		
Target C—Interpret results in the context of a situation					
Target D—Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).					
Claim 4: MODELING AND DATA ANALYSIS (3 CAT & 2-3 PT Items)	Standards Addressed¹	DOK	CAT Items	PT Items	Item Types
Target A—Apply mathematics to solve problems arising in everyday life, society, and the workplace.	6.RP.1, 2, 3 6.NS.1, 5, 6, 7, 8 6.EE.5, 6, 7, 8, 9 6.G.1, 2, 3, 4 6.SP.1, 2, 3, 4, 5	2, 3	1	2-3	MC, MS, EQ, DD, HS, GR, TM, TI
Target D—Interpret results in the context of a situation		2, 3, 4	1		
Target B—Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.					
Target E—Analyze the adequacy of, and make improvements to, an existing model or develop a mathematical model of a real phenomenon.					
Target C—State logical assumptions being used		1, 2	1	ST (PT & Tgt B only)	
Target F—Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).	3, 4	0			
Target G—Identify, analyze and synthesize relevant external resources to pose or solve problems. (PT ONLY)					

NOTE 1: The standards that are designated “Primary Emphasis” are bolded

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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: COMMUNICATING REASONING (6 CAT & 2 PT Items)	Standards Addressed²	DOK	CAT Items	PT Items	Item Types
Target A—Test propositions or conjectures with specific examples Target D—Use the technique of breaking an argument into cases	6.RP.3 6.NS.1, 5, 6, 7 6.EE.3, 4, 6, 9	2,3	2-3	2	MC, MS, EQ, DD, HS, GR, TM, TI ST (PT & Tgt B only)
Target B— Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. Target E—Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.		2, 3, 4	1-2		
Target C—State logical assumptions being used Target F—Base arguments on concrete referents such as objects, drawings, diagrams, and actions Target G—At later grades, determine conditions under which an argument does and does not apply. (For example, area increases with perimeter for squares, but not for all plane figures.)		2, 3	2-3		

NOTE 2: Claim 3 does not designate standards for primary emphasis, as do Claims 2 & 4

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Valuable Facts

(From SBAC Blueprint dtd 4-21-14)

1. Number of items per Claim is not necessarily proportional to Claim weight for scoring
2. In grades 6-8 on the CAT, 1 item per student (from either Claim 3 Target B or Claim 4 Target B) is designed for hand-scoring, i.e., a Short Text (ST) item type.
3. Claim 2 (Problem Solving) and Claim 4 (Modeling & Data Analysis) have been combined for reporting purposes
4. On the **CAT** portion of the test...
 - For Claim 1, each student will receive at least 7 CAT items at DOK 2 or higher.
 - For combined Claims 2 & 4, each student will receive at least 2 CAT items at DOK 3 or higher
 - For Claim 3, a student will receive a least 2 CAT items at DOK 3 or higher

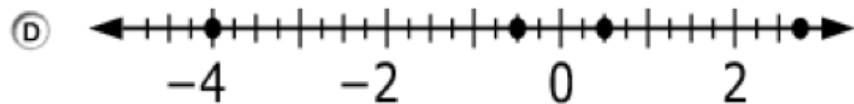
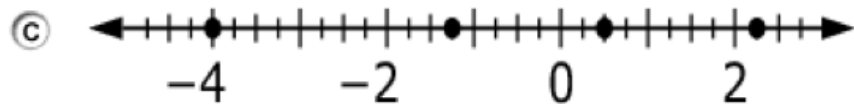
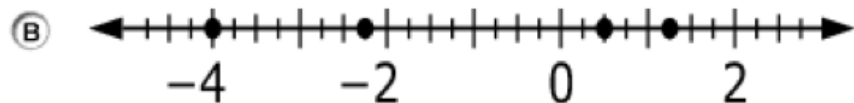
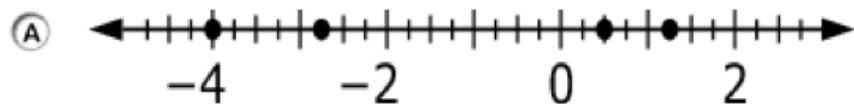
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All Example Items are from 6th grade Smarter Balanced Practice Test (unless otherwise noted)**MC (Multiple Choice Item)**

Which number line shows the correct locations of **all** the given values?

$$\frac{1}{2}, -4, -2\frac{3}{4}, 1\frac{1}{4}$$



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MS (Multiple Select Item)

Select **all** equations that have $x = 3$ as a solution.

- $x + 7 = 10$
- $3 + x = 3$
- $x \cdot 3 = 1$
- $4 \cdot x = 12$

EQ (Equation-Numeric) requiring a “numeric” response

The equation shown has an unknown number.

$$\square \div \frac{2}{3} = \frac{3}{4}$$

Enter a fraction that makes the equation true.

← → ↶ ↷ ✖

1	2	3	+	-	*	÷
4	5	6	<	=	>	
7	8	9	$\frac{\square}{\square}$	\square^\square	()	
0	.	-				

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EQ (Equation-Numeric) requiring an “equation” response

In the morning, Emily studied 40 minutes for a math exam. Later that evening, Emily studied for x more minutes.

Enter an **equation** that represents the total number of minutes, y , Emily studied for the math exam.

1	2	3	x	y					
4	5	6	+	-	*	÷			
7	8	9	<	=	>				
0	.	-	$\frac{\square}{\square}$	\square^\square	()				

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HS (Hot Spot) Part A and DD (Drag & Drop) Part B

1855



Carlos needs 1.7 meters of wire for one project and 0.8 meter of wire for another project.

Part A:

Shade the model to represent the total amount of wire Carlos needs. Each full row represents 1.0 meter.

Part B:

Carlos has 2.4 meters of wire.

Does Carlos have enough wire?

- If he does, answer how much wire he will have left over.
- If he does **not**, answer how much more he needs.

Drag the value into one of the boxes.

0.1

0.2

0.3

0.4

0.5

0.9

1.6

2.5

3.2

4.1

Delete

Part A

Each full row = 1.0 meter

--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--

Part B

He will have meters of wire left over.

OR

He needs more meters of wire.

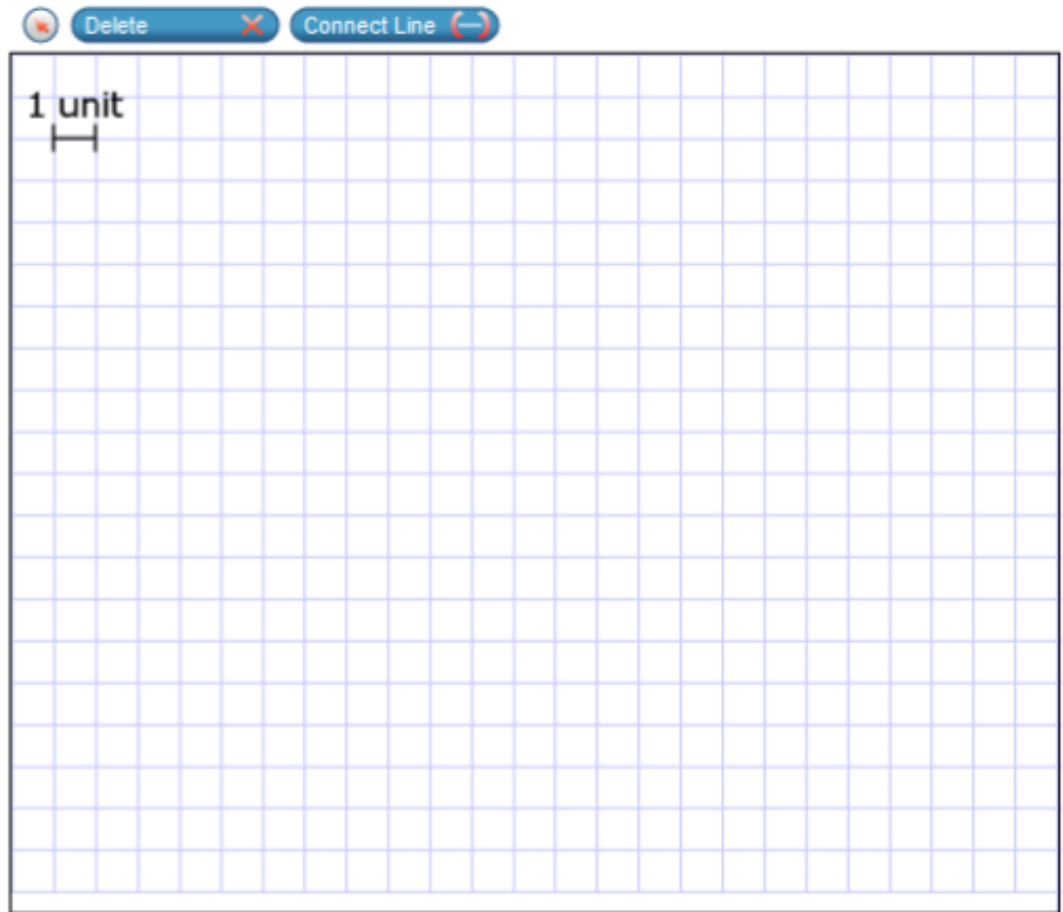
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GR (Graphing)**1858**

Micah constructs a rectangular prism with a volume of 360 cubic units. The height of his prism is 10 units.

Micah claims that the base of the prism must be a square.

Use the Connect Line tool to draw a base that shows Micah's claim is incorrect.



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TM (Matching Tables)

Sea level is 0 feet in elevation. The elevation of land represents its height above or below sea level. This table shows the lowest elevation in some states.

State	Lowest Elevation (ft)
Arizona	72
California	- 282
Louisiana	- 68
Tennessee	178

Determine whether each statement about the lowest elevations is correct. Select True or False for each statement.

	True	False
The elevation at the lowest point in California is higher than the lowest point in Louisiana.	<input type="checkbox"/>	<input type="checkbox"/>
The elevation at the lowest point in Tennessee is farther from 0 than the elevation at the lowest point of Louisiana.	<input type="checkbox"/>	<input type="checkbox"/>
The elevation at the lowest point in Louisiana is higher than the lowest point in California.	<input type="checkbox"/>	<input type="checkbox"/>

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TI (Insert Table)

This table contains x and y values in equivalent ratios. Fill in the missing value in the table.

x	y
2	6
5	<input type="text"/>
7	21
9	27

ST (Short Text)

Requirements for the new boxes:

- The new boxes have to use less cardboard than the original boxes.
- The new boxes have to hold the same or a greater volume of cereal as the original boxes.

The company proposes a new cereal box with dimensions 10.5 inches high, 7.5 inches wide, and 4 inches deep. The new cereal box is a rectangular prism. Determine if this new box meets each of the requirements. Explain why or why not.