



Mathematics Interim Assessment Blocks

2016-17 Blueprint

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The Smarter Balanced Interim Assessment Blocks (IABs) are one of two distinct types of interim assessments being made available by the Consortium; the other type is the Interim Comprehensive Assessment (ICAs). IABs are short, focused sets or blocks of items that measure one or more assessment targets. Results from these assessments provide information about a student's strengths or needs in relation to the Common Core State Standards (CCSS) and, therefore, generate more detailed information for instructional purposes than the summative or ICAs alone. The IABs are currently available as fixed forms. The fixed forms are administered online, using the same delivery software as the summative assessments.

This blueprint presents the specific blocks that are available by grade level for mathematics beginning at grade 3 and continuing through high school. Each block-level blueprint contains information about claim(s), assessment target(s), and depth of knowledge level(s) addressed by the items in that block as well as the numbers of items allocated to each of those categories.

The blueprint can be used by educators to plan how to integrate the IABs effectively within classroom instruction or to better understand results that are reported. Users of the blueprint can become familiar with the number of IABs for each grade level, the general focus of each IAB, (i.e. which assessment targets are addressed in a specific IAB and the emphasis of each target relative to the other targets in the block). A fifth-grade teacher, for example, may wish to collect more information regarding her students' knowledge about geometry. The teacher could use this blueprint to see that there is a block for geometry composed of 13 machined-scored items across the four claims—concepts and procedures, problem solving, modeling and data analysis, and communicating reasoning. After reading the blueprint, she will have a better understanding of the meaning of the geometry block.

High School

High School – Algebra and Functions I – Linear Functions, Equations, and Inequalities (15 items)					
Claim	Content Category	Assessment Targets	DOK	Number of Items	Total Items per Reporting Category
1. Concepts and Procedures	A, F	G. Create equations that describe numbers or relationships.	1, 2	1	11
		I. Solve equations and inequalities in one variable.	1, 2	3	
		J. Represent and solve equations and inequalities graphically.	1, 2	4	
		L. Interpret functions that arise in applications in terms of a context.	1, 2	1	
		M. Analyze functions using different representations.	1, 2, 3	1	
		N. Build a function that models a relationship between two quantities.	2	1	
2. Problem Solving 4. Modeling and Data Analysis	Problem Solving	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	2	3
		B. Select and use appropriate tools strategically.	1, 2, 3		
		C. Interpret results in the context of a situation.			
	D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).				
	Modeling and Data Analysis	A. Apply mathematics to solve problems arising in everyday life, society, and the workplace. D. Interpret results in the context of a situation.	2, 3	1	
		B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.	2, 3, 4		
		E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.			
		C. State logical assumptions being used.	1, 2, 3		
F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).					
G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4				
3. Communicating Reasoning	Communicating Reasoning	A. Test propositions or conjectures with specific examples. D. Use the technique of breaking an argument into cases.	2, 3	1	1
		B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.	2, 3, 4		
		E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.			
		C. State logical assumptions being used.	2, 3		
		F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions.			
		G. At later grades, determine conditions under which an argument does and does not apply.			

High School (continued)

High School – Algebra and Functions II – Quadratic Functions, Equations, and Inequalities (15 items)					
Claim	Content Category	Assessment Targets	DOK	Number of Items	Total Items per Reporting Category
1. Concepts and Procedures	A, F	G. Create equations that describe numbers or relationships.	1, 2	1	12
		H. Understand solving equations as a process of reasoning and explain the reasoning.	1, 2	3	
		I. Solve equations and inequalities in one variable.	1, 2	1	
		J. Represent and solve equations and inequalities graphically.	1, 2	3	
		L. Interpret functions that arise in applications in terms of a context.	1, 2	1	
		M. Analyze functions using different representations.	1, 2, 3	2	
		N. Build a function that models a relationship between two quantities.	2	1	
2. Problem Solving 4. Modeling and Data Analysis	Problem Solving	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	0	2
		B. Select and use appropriate tools strategically.	1, 2, 3		
		C. Interpret results in the context of a situation.			
		D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).			
	Modeling and Data Analysis	A. Apply mathematics to solve problems arising in everyday life, society, and the workplace. D. Interpret results in the context of a situation.	2, 3	2	
		B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.	2, 3, 4		
		E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.			
	C. State logical assumptions being used. F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).	1, 2, 3			
	G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4			
3. Communicating Reasoning	Communicating Reasoning	A. Test propositions or conjectures with specific examples. D. Use the technique of breaking an argument into cases.	2, 3	1	1
		B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.	2, 3, 4		
		E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.			
		C. State logical assumptions being used. F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions. G. At later grades, determine conditions under which an argument does and does not apply.	2, 3		

High School (continued)

High School – Geometry and Right Triangle Trigonometry (15 items)					
Claim	Content Category	Assessment Targets	DOK	Number of Items	Total Items per Reporting Category
1. Concepts and Procedures	G	O: Define trigonometric ratios and solve problems involving right triangles.	1, 2	11	11
2. Problem Solving 4. Modeling and Data Analysis	Problem Solving	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	1	1
		B. Select and use appropriate tools strategically. C. Interpret results in the context of a situation. D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).	1, 2, 3		
	Modeling and Data Analysis	A. Apply mathematics to solve problems arising in everyday life, society, and the workplace. D. Interpret results in the context of a situation.	2, 3	0	
		B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem. E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.	2, 3, 4		
		C. State logical assumptions being used. F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).	1, 2, 3		
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4		
3. Communicating Reasoning	Communicating Reasoning	A. Test propositions or conjectures with specific examples. D. Use the technique of breaking an argument into cases.	2, 3	3	3
		B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. 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		
		C. State logical assumptions being used. F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions. 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		

High School (continued)

High School – Statistics and Probability (12 items)					
Claim	Content Category	Assessment Targets	DOK	Number of Items	Total Items per Reporting Category
1. Concepts and Procedures	SP	P. Summarize, represent, and interpret data on a single count or measurement variable.	2	6	6
2. Problem Solving 4. Modeling and Data Analysis	Problem Solving	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	3	6
		B. Select and use appropriate tools strategically.	1, 2, 3		
		C. Interpret results in the context of a situation.			
	D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).				
	Modeling and Data Analysis	A. Apply mathematics to solve problems arising in everyday life, society, and the workplace.	2, 3	3	
		D. Interpret results in the context of a situation.			
		B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.	2, 3, 4		
		E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.			
C. State logical assumptions being used.					
F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).	1, 2, 3				
G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4				
3. Communicating Reasoning	Communicating Reasoning	A. Test propositions or conjectures with specific examples.	2, 3	0	0
		D. Use the technique of breaking an argument into cases.			
		B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.	2, 3, 4		
		E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.			
		C. State logical assumptions being used.	2, 3		
		F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions.			
		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.)			

High School (continued)

High School – Interim Assessment Block – Performance Task					
Claim	Content Category	Assessment Targets	DOK	Items per Claim	Total Items in PT
2. Problem Solving 4. Modeling and Data Analysis	Problem Solving	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	1	6
		B. Select and use appropriate tools strategically. C. Interpret results in the context of a situation. D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).	1, 2, 3		
	Modeling and Data Analysis	A. Apply mathematics to solve problems arising in everyday life, society, and the workplace. D. Interpret results in the context of a situation.	2, 3	3	
		B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem. E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.	2, 3, 4		
		C. State logical assumptions being used. F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).	1, 2, 3		
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4		
3. Communicating Reasoning	Communicating Reasoning	A. Test propositions or conjectures with specific examples. D. Use the technique of breaking an argument into cases.	2, 3	2	
		B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. 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		
		C. State logical assumptions being used. F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions. 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		