High School Mathematics Blueprints

Blueprint Table – Algebra I						
Claim/Score Reporting Category	**Content Category**	**Stimuli**		**Items**		**Total Items by Claim**
		CAT	**PT**	**CAT**	**PT**	
1. Concepts and Procedures	Priority Cluster	0	0	8	0	11
	Supporting Cluster	0		3		
2. Problem Solving 4. Modeling and Data Analysis	Problem Solving	0	1	3	2-4	5-7
	Modeling and Data Analysis	0				
3. Communicating Reasoning	Communicating Reasoning	0		4	0-2	4-6

Target Sampling – Algebra I						
Claim	**Content Category**	**Assessment Targets**	**DOK**	**Items**		**Total Items**
				CAT	**PT**	
1. Concepts and Procedures	Priority Cluster	D. Interpret the structure of expressions.	1, 2	1-2	0	11
		E. Write expressions in equivalent forms to solve problems.	1, 2			
		F. Perform arithmetic operations on polynomials	2	0-1		
		G. Create equations that describe numbers or relationships	1, 2	2		
		H. Understand solving equations as a process of reasoning and explain the reasoning	1, 2			
		I. Solve equations and inequalities in one variable	1, 2			
		J. Represent and solve equations and inequalities graphically	1, 2	0-2		
		K. Understand the concept of a function and use function notation	1, 2	0-2		
		L. Interpret functions that arise in applications in terms of a context	1, 2	2		
		M. Analyze functions using different representations	1, 2, 3			
	Supporting Cluster	P. Summarize, represent, and interpret data on a single count or measurement variable	2	0-2		
		A. Extend the properties of exponents to rational exponents	1, 2	0-1		
		B. Use properties of rational and irrational numbers	1, 2			
		C. Reason quantitatively and use the units to solve problems	1, 2	0-1		

Target Sampling – Algebra I						
Claim	**Content Category**	**Assessment Targets**	**DOK**	**Items**		**Total Items**
				CAT	**PT**	
2. Problem Solving 4. Modeling and Data Analysis	Problem Solving *Drawn across content areas*	A. Apply Mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2. 3	0-1	1-2	5-7
		B. Select and use 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	0-1		
	Modeling and Data Analysis *Drawn across content areas*	A. Apply Mathematics to solve well-posed problems arising in everyday life, society, and the workplace. D. Interpret results in the context of a situation.	2, 3	0-1	1-3	
		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	0-1		
		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	0-1		
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4	0		

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Claim	**Content Category**	**Assessment Targets**	**DOK**	**Items**		**Total Items**
				CAT	**PT**	
3. Communicating Reasoning	Communicating Reasoning *Drawn across content areas*	A. Test propositions or conjectures with specific examples D. Use the technique of breaking an argument into cases.	2, 3	1-2	0-2	4-6
		B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem. 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		
		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	1		

Blueprint Table – Geometry						
Claim/Score Reporting Category	**Content Category**	**Stimuli**		**Items**		**Total Items by Claim**
		CAT	**PT**	**CAT**	**PT**	
1. Concepts and Procedures	Priority Cluster	0	0	8	0	11
	Supporting Cluster	0		3		
2. Problem Solving 4. Modeling and Data Analysis	Problem Solving	0	1	3	2-4	5-7
	Modeling and Data Analysis	0				
3. Communicating Reasoning	Communicating Reasoning	0		4	0-2	4-6

Target Sampling – Geometry						
Claim	**Content Category**	**Assessment Targets**	**DOK**	**Items**		**Total Items**
				CAT	**PT**	
1. Concepts and Procedures	Priority Cluster	Experiment with transformations in the plane	1, 2	0-2	0	11
		Understand congruence in terms of rigid motions	1, 2	1-2		
		Prove geometric theorems	1, 2			
		Make geometric constructions	2	0-1		
		Understand similarity in terms of similarity transformations	1, 2	2		
		Prove theorems involving similarity	1, 2			
		Define trigonometric ratios and solve problems involving right triangles	1, 2			
		Apply trigonometry to general triangles.	1, 2	0-2		
		Explain volume formulas and use them to solve problems	1, 2	0-2		
		Visualize relationships between two-dimensional and three-dimensional objects	1, 2	2		
	Supporting Cluster	Understand and apply theorems about circles	1, 2, 3	0-2		
		Find arc lengths and areas of sectors of circles	2			
		Translate between the geometric description and the equation for a conic section	1, 2	0-1		
		Use coordinates to prove simple geometric theorems algebraically	1, 2			

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		B. Select and use 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	0-1		
	Modeling and Data Analysis *Drawn across content areas*	A. Apply Mathematics to solve well-posed problems arising in everyday life, society, and the workplace. D. Interpret results in the context of a situation.	2, 3	0-1	1-3	
		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	0-1		
		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	0-1		
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4	0		

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				CAT	**PT**	
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