

Spring 2022



Summative Blueprints for Mathematics

General Information

Each of the following blueprints is for a summative Mathematics assessment in grades 3 through 9. Each assessment follows a linear design (also referred to as fixed) for Spring 2022. It is estimated to take about two hours for students to complete.

Each Math item measures either the content defined by the standard or the practice of argumentation or modeling. Each content item is worth 1 point and is machine scored. Item types include multiple choice, other selected response, and constructed response. Argumentation and modeling items are either human scored or machine scored. The machine-scored items are worth 1, 2, or 3 points and include the same item types as the content items. The human-scored items include at least one extended-response part with an embedded equation editor.

The grade-level blueprints that follow provide more detailed information about the measurement of knowledge and skills in each content category within a form, including the percentage and number of points allocated to each content category.



Grade 3

A grade 3 test form will include a total of 50 points distributed in the three task types: content, argumentation, and modeling.

Each form will include 40 machine-scored content items, each worth 1 point. Item types will include multiple choice, other selected response, and constructed response. Each item will be aligned to at least one of the standards within a content category in the following table.

Each form will include a total of 5 points from argumentation items. One item will be a human-scored constructed-response item worth 3 points. Each argumentation item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Each form will include a total of 5 points from modeling items. One item will be a human-scored constructed-response item worth 3 points. Each modeling item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Claim	Content Category	Weight Within Form*	Points
Content	Operations and Algebraic Thinking	28%	14
	Numbers and Operations in Base 10	20%	10
	Numbers and Operations—Fractions		
	Measurement and Data	24%	12
	Geometry	8%	4
Content			40
Argumentation	ANY	10%	5
Modeling	ANY	10%	5
Argumentation and Modeling			10
Total Points			50

*Some percentages have been rounded up to the next whole number, which may result in a total higher than 100.



Grade 4

A grade 4 test form will include a total of 50 points distributed in the three task types: content, argumentation, and modeling.

Each form will include 40 machine-scored content items, each worth 1 point. Item types will include multiple choice, other selected response, and constructed response. Each item will be aligned to at least one of the standards within a content category in the following table.

Each form will include a total of 5 points from argumentation items. One item will be a human-scored constructed-response item worth 3 points. Each argumentation item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Each form will include a total of 5 points from modeling items. One item will be a human-scored constructed-response item worth 3 points. Each modeling item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Claim	Content Category	Weight Within Form*	Points
Content	Operations and Algebraic Thinking	12%	6
	Numbers and Operations in Base 10	36%	18
	Numbers and Operations—Fractions		
	Measurement and Data	16%	8
	Geometry	16%	8
Content			40
Argumentation	ANY	10%	5
Modeling	ANY	10%	5
Argumentation and Modeling			10
Total Points			50

*Some percentages have been rounded up to the next whole number, which may result in a total higher than 100.



Grade 5

A grade 5 test form will include a total of 50 points distributed in the three task types: content, argumentation, and modeling.

Each form will include 40 machine-scored content items, each worth 1 point. Item types will include multiple choice, other selected response, and constructed response. Each item will be aligned to at least one of the standards within a content category in the following table.

Each form will include a total of 5 points from argumentation items. One item will be a human-scored constructed-response item worth 3 points. Each argumentation item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Each form will include a total of 5 points from modeling items. One item will be a human-scored constructed-response item worth 3 points. Each modeling item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Claim	Content Category	Weight Within Form*	Points
Content	Operations and Algebraic Thinking	8%	4
	Numbers and Operations in Base 10	40%	20
	Numbers and Operations—Fractions		
	Measurement and Data	20%	10
	Geometry	12%	6
Content			40
Argumentation	ANY	10%	5
Modeling	ANY	10%	5
Argumentation and Modeling			10
Total Points			50

*Some percentages have been rounded up to the next whole number, which may result in a total higher than 100.



Grade 6

A grade 6 test form will include a total of 57 points distributed in the three task types: content, argumentation, and modeling.

Each form will include 45 machine-scored content items, each worth 1 point. Item types will include multiple choice, other selected response, and constructed response. Each item will be aligned to at least one of the standards within a content category in the following table.

Each form will include a total of 6 points from argumentation items. One item will be a human-scored constructed-response item worth 4 points. Each argumentation item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Each form will include a total of 6 points from modeling items. One item will be a human-scored constructed-response item worth 4 points. Each modeling item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Claim	Content Category	Weight Within Form*	Points
Content	Ratio and Proportion	18%	10
	The Number System	18%	10
	Expression and Equations	19%	11
	Geometry	12%	7
	Statistics and Probability	12%	7
Content			45
Argumentation	ANY	11%	6
Modeling	ANY	11%	6
Argumentation and Modeling			12
Total Points			57

*Some percentages have been rounded up to the next whole number, which may result in a total higher than 100.



Grade 7

A grade 7 test form will include a total of 57 points distributed in the three task types: content, argumentation, and modeling.

Each form will include 45 machine-scored content items, each worth 1 point. Item types will include multiple choice, other selected response, and constructed response. Each item will be aligned to at least one of the standards within a content category in the following table.

Each form will include a total of 6 points from argumentation items. One item will be a human-scored constructed-response item worth 4 points. Each argumentation item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Each form will include a total of 6 points from modeling items. One item will be a human-scored constructed-response item worth 4 points. Each modeling item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Claim	Content Category	Weight Within Form*	Points
Content	Ratio and Proportion	16%	9
	The Number System	12%	7
	Expression and Equations	19%	11
	Geometry	16%	9
	Statistics and Probability	16%	9
Content			45
Argumentation	ANY	11%	6
Modeling	ANY	11%	6
Argumentation and Modeling			12
Total Points			57

*Some percentages have been rounded up to the next whole number, which may result in a total higher than 100.



Grade 8

A grade 8 test form will include a total of 57 points distributed in the three task types: content, argumentation, and modeling.

Each form will include 45 machine-scored content items, each worth 1 point. Item types will include multiple choice, other selected response, and constructed response. Each item will be aligned to at least one of the standards within a content category in the following table.

Each form will include a total of 6 points from argumentation items. One item will be a human-scored constructed-response item worth 4 points. Each argumentation item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Each form will include a total of 6 points from modeling items. One item will be a human-scored constructed-response item worth 4 points. Each modeling item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Claim	Content Category	Weight Within Form*	Points
Content	The Number System	2%	1
	Expression and Equations	23%	13
	Functions	25%	14
	Geometry	19%	11
	Statistics and Probability	11%	6
Content			45
Argumentation	ANY	11%	6
Modeling	ANY	11%	6
Argumentation and Modeling			12
Total Points			57

*Some percentages have been rounded up to the next whole number, which may result in a total higher than 100.



Grade 9

A grade 9 test form will include a total of 68 points distributed in the three task types: content, argumentation, and modeling.

Each form will include 48 machine-scored content items, each worth 1 point. Item types will include multiple choice, other selected response, and constructed response. Each item will be aligned to at least one of the standards within a content category in the following table.

Each form will include a total of 10 points from argumentation items. One item will be a human-scored constructed-response item worth 4 points. Each argumentation item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Each form will include a total of 10 points from modeling items. One item will be a human-scored constructed-response item worth 4 points. Each modeling item is aligned to one content standard and one or more of the Standards for Mathematical Practice.

Claim	Content Category	Weight Within Form*	Points
Content	Number and Quantity	7%	5
	Algebra	28%	19
	Functions	28%	19
	Statistics and Probability	7%	5
Content			48
Argumentation	ANY	15%	10
Modeling	ANY	15%	10
Argumentation and Modeling			20
Total Points			68

*Some percentages have been rounded up to the next whole number, which may result in a total higher than 100.

Summary of Points by Grade

Claim	Content Category	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
Content	Operations and Algebraic Thinking	14	6	4	n/a	n/a	n/a	n/a
	Numbers and Operations in Base 10 Numbers and Operations—Fractions	10	18	20	n/a	n/a	n/a	n/a
	Measurement and Data	12	8	10	n/a	n/a	n/a	n/a
	Geometry	4	8	6	7	9	11	n/a
	Ratio and Proportion	n/a	n/a	n/a	10	9	n/a	n/a
	The Number System	n/a	n/a	n/a	10	7	1	n/a
	Expression and Equations	n/a	n/a	n/a	11	11	13	n/a
	Statistics and Probability	n/a	n/a	n/a	7	9	6	5
	Functions	n/a	n/a	n/a	n/a	n/a	14	19
	Number and Quantity Algebra	n/a	n/a	n/a	n/a	n/a	n/a	5
Argumentation and Modeling	Argumentation	5	5	5	6	6	6	10
	Modeling	5	5	5	6	6	6	10
TOTAL		50	50	50	57	57	57	68