

Number of items in Mathematics on-line test forms				
Grade	Total Items	Item Category		
		Core Operational		FT Slots
		Stand Alone	Perf. Event	Stand Alone
3	47 + PE	42	1	5
4	47 + PE	42	1	5
5	47 + PE	42	1	5
6	51 + PE	46	1	5
7	51 + PE	46	1	5
8	51 + PE	46	1	5

Estimated count of unique Mathematics items field-tested by grade					
Grade	Field Test Item Count				
	NBT	NF	RA	GM	DS
3	12	15	27	17	4
4	15	21	18	17	4
5	12	27	15	17	4
Grade	Field Test Item Count				
	RP	NS	EEI	GM	DSP
6	9	21	24	9	12
7	15	12	21	12	15
Grade	Field Test Item Count				
	NS	EEI	F	GM	DSP
8	6	24	15	18	12

Total Forms
96 Total Online Forms
6 Braille
6 Paper Forms
6 Large Print

Number of Mathematics forms in the Spring 2018 administration and beyond	
Grade	Number of Forms
3	16 total: 7 Operational with field test positions (Core Form A) 7 Operational with field test positions (Core Form B) 1 Breach (Core Form C) – no field test positions 1 Transcription (Core Form A) – no field test positions*
4	16 total: 7 Operational with field test positions (Core Form A) 7 Operational with field test positions (Core Form B) 1 Breach (Core Form C) – no field test positions 1 Transcription (Core Form A) – no field test positions*
5	16 total: 7 Operational with field test positions (Core Form A) 7 Operational with field test positions (Core Form B) 1 Breach (Core Form C) – no field test positions 1 Transcription (Core Form A) – no field test positions*
6	16 total: 7 Operational with field test positions (Core Form A) 7 Operational with field test positions (Core Form B) 1 Breach (Core Form C) – no field test positions 1 Transcription (Core Form A) – no field test positions*
7	16 total: 7 Operational with field test positions (Core Form A) 7 Operational with field test positions (Core Form B) 1 Breach (Core Form C) – no field test positions 1 Transcription (Core Form A) – no field test positions*
8	16 total: 7 Operational with field test positions (Core Form A) 7 Operational with field test positions (Core Form B) 1 Breach (Core Form C) – no field test positions 1 Transcription (Core Form A) – no field test positions*

2018 and beyond		Operational Total		Field Test Per Form				Field Test Plan					
Subject	Grade	Core Total (stand alone)	Core Total (perf. event)	Number of Field Test Items Per Form				Total Items per Form	Number of FT Forms Online	Total Number of Field Test Items Per Administration			
				SR	TE	PE*	Total			SR	TE	PE*	Total
Mathematics	3	42	1	3	2	-	5	47	15	45	30	-	75
Mathematics	4	42	1	3	2	-	5	47	15	45	30	-	75
Mathematics	5	42	1	3	2	-	5	47	15	45	30	-	75
Mathematics	6	46	1	3	2	-	5	51	15	45	30	-	75
Mathematics	7	46	1	3	2	-	5	51	15	45	30	-	75
Mathematics	8	46	1	3	2	-	5	51	15	45	30	-	75
Total				18	12	-	30		90	270	180	-	450

*Additional Performance Events do not need to be field-tested in 2018 and beyond if the Performance Events field-tested in 2017 are used operationally for several years.

* Transcription Form will be used for Braille, LP & Paper Accommodations

Assumptions

The "Data and Statistics" domain in grades 3-5 has a much smaller number of Expectations (2-4) in comparison to the other domains. The number of points in Data and Statistics in the 2018 blueprint is historically similar to previous years.

All items are worth 1 point, with the exception of items in Performance Events.

This blueprint can be used to assess all the expectations in a rotating basis over 3 – 4 years.

This blueprint is based on using approximately 20–25 anchor points from previous year.

Operational Linking Points (from anchor items) are estimated and are approximately 20–25 points per grade. The remainder of the Operational Points are unique/non-linking.

The number of Core items and points for each reporting category is fixed. The Core item type distribution is estimated.

The number of Field Test items and points is fixed.

Each year the performance event may align to any specific domain or to a group of domains, so the number of operational points in certain domains may change from year to year.

Missouri Grade 3 Mathematics Test Blueprint and Test Design—2018 Administration

Math Core Points by Cluster (Content Category)						
Domain (Reporting Category)	Cluster (Content Category)	Item Type	# of Core Items	Points Per Item	Total # of Points	Percent of Total
Number Sense and Operations in Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic.	SR	3	1	6	14%
		TE	3	1		
		Total NBT				6
Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	SR	4	1	7	17%
		TE	3	1		
		Total NF				7
Relationships and Algebraic Thinking	Represent and solve problems involving multiplication and division.	SR	3	1	4	10%
		TE	1	1		
	Understand properties of multiplication and the relationship between multiplication and division.	SR	2	1	4	10%
		TE	2	1		
	Multiply and divide within 100.	SR	2	1	3	7%
		TE	1	1		
	Use the four operations to solve word problems.	SR	1	1	2	5%
		TE	1	1		
	Identify and explain arithmetic patterns.	SR	1	1	2	5%
		TE	1	1		
Total RA				15	36%	
Geometry and Measurement	Reason with shapes and their attributes.	SR	2	1	4	10%
		TE	2	1		
	Solve problems involving the measurement of time, liquid volumes and weights of objects.	SR	2	1	3	7%
		TE	1	1		
	Understand concepts of area.	SR	2	1	3	7%
		TE	1	1		
	Understand concepts of perimeter.	SR	1	1	2	5%
		TE	1	1		
Total GM				12	29%	
Data and Statistics	Represent and analyze data.	SR	1	1	2	5%
		TE	1	1		
		Total DS				2
Total Grade 3 Mathematics					42	100%

Performance Event (PE): Each year the PE may align to any specific domain or to a group of domains. The PE contains multiple items and is worth 10 points.

ITEM TYPE KEY (item types in red are grade-specific)

SR	Multiple Choice Multi-Select (similar to Multiple Choice but with multiple correct responses)
TE	Angle Drawing (creating an angle) Bar Graph (creating a bar graph) Clock (setting the time on an analog clock) Coordinate Grid (graphing on a coordinate grid) Drag and Drop (dragging text or graphics into a drop area) Drop-Down Menu (selecting an option provided in a drop-down menu) Line Plot (creating a line plot) Matching Input (using a line to connect options in a left column with those in a right column) Number Line (graphing on a number line) Select Answers/Hot Spot (selecting areas in a graphic, such as placing checkmarks in a table) Text Input (keyboard/keypad entry in a response box)

Math Test Form Design

Session	Session Description	Total Operational Linking* Points	Total Unique Operational Points	Total Operational Points	Total Field Test Points	Total Points	Recommended Session Time (min)
1	Non-Calculator (All Domains)	12	9	21	3	24	35 – 50
2	Non-Calculator (All Domains)	12	9	21	2	23	35 – 50
3	Performance Event (Single Domain or Multiple Domains)	10	0	10	0	10	10 – 20
Total Grade 3 Mathematics		34	18	52	5	57	80 – 120

*The same anchor set will be used for between-form and between-administration linking.

Missouri Grade 4 Mathematics Test Blueprint and Test Design—2018 Administration

Math Core Points by Cluster (Content Category)

Domain (Reporting Category)	Cluster (Content Category)	Item Type	# of Core Items	Points Per Item	Total # of Points	Percent of Total
Number Sense and Operations in Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic with numbers up to one million.	SR	5	1	8	19%
		TE	3	1		
		Total NBT			8	19%
Number Sense and Operations in Fractions	Extend understanding of fraction equivalence and ordering. (Limit denominators to 2, 3, 4, 5, 6, 8, 10, 12 and 100.)	SR	2	1	3	7%
		TE	1	1		
	Extend understanding of operations on whole numbers to fraction operations.	SR	4	1	5	12%
		TE	1	1		
	Understand decimal notation for fractions, and compare decimal fractions. (Denominators of 10 or 100.)	SR	3	1	4	10%
		TE	1	1		
Total NF			12	29%		
Relationships and Algebraic Thinking	Use the four operations with whole numbers to solve problems.	SR	3	1	5	12%
		TE	2	1		
	Work with factors and multiples.	SR	1	1	2	5%
		TE	1	1		
	Generate and analyze patterns.	SR	2	1	3	7%
		TE	1	1		
Total RA			10	24%		
Geometry and Measurement	Classify 2-dimensional shapes by properties of their lines and angles.	SR	2	1	4	10%
		TE	2	1		
	Understand the concepts of angle and measure angles.	SR	2	1	3	7%
		TE	1	1		
	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	SR	2	1	3	7%
		TE	1	1		
Total GM			10	24%		
Data and Statistics	Represent and analyze data.	SR	1	1	2	5%
		TE	1	1		
		Total DS			2	5%
Total Grade 4 Mathematics					42	100%

Performance Event (PE): Each year the PE may align to any specific domain or to a group of domains. The PE contains multiple items and is worth 10 points.

ITEM TYPE KEY (item types in red are grade-specific)

SR	Multiple Choice Multi-Select (similar to Multiple Choice but with multiple correct responses)
TE	Angle Drawing (creating an angle) Bar Graph (creating a bar graph) Clock (setting the time on an analog clock) Coordinate Grid (graphing on a coordinate grid) Drag and Drop (dragging text or graphics into a drop area) Drop-Down Menu (selecting an option provided in a drop-down menu) Line Plot (creating a line plot) Matching Input (using a line to connect options in a left column with those in a right column) Number Line (graphing on a number line) Select Answers/Hot Spot (selecting areas in a graphic, such as placing checkmarks in a table) Text Input (keyboard/keypad entry in a response box)

Math Test Form Design

Session	Session Description	Total Operational Linking* Points	Total Unique Operational Points	Total Operational Points	Total Field Test Points	Total Points	Recommended Session Time (min)
1	Non-Calculator (All Domains)	12	9	21	3	24	35 – 50
2	Non-Calculator (All Domains)	12	9	21	2	23	35 – 50
3	Performance Event (Single Domain or Multiple Domains)	10	0	10	0	10	10 – 20
Total Grade 4 Mathematics		34	18	52	5	57	80 – 120

*The same anchor set will be used for between-form and between-administration linking.

Missouri Grade 5 Mathematics Test Blueprint and Test Design—2018 Administration

Math Core Points by Cluster (Content Category)

Domain (Reporting Category)	Cluster (Content Category)	Item Type	# of Core Items	Points Per Item	Total # of Points	Percent of Total
Number Sense and Operations in Base Ten	Use place value system understanding to perform operations with multi-digit whole numbers to billions and decimals to thousandths.	SR	5	1	8	19%
		TE	3	1		
		Total NBT			8	19%
Number Sense and Operations in Fractions	Understand the relationship between fractions and decimals (denominators that are factors of 100.)	SR	2	1	4	10%
		TE	2	1		
	Perform operations and solve problems with fractions and decimals.	SR	8	1	12	29%
		TE	4	1		
		Total NF				
Relationships and Algebraic Thinking	Represent and analyze patterns and relationships.	SR	1	1	2	5%
		TE	1	1		
	Write and interpret numerical expressions.	SR	1	1	2	5%
		TE	1	1		
	Use the four operations to represent and solve problems.	SR	1	1	2	5%
		TE	1	1		
Total RA			6	14%		
Geometry and Measurement	Classify two- and three-dimensional geometric shapes.	SR	1	1	2	5%
		TE	1	1		
	Understand and compute volume.	SR	2	1	3	7%
		TE	1	1		
	Graph points on the Cartesian coordinate plane within the first quadrant to solve problems.	SR	2	1	3	7%
		TE	1	1		
	Solve problems involving measurement and conversions within a measurement system.	SR	1	1	2	5%
		TE	1	1		
Total GM			10	24%		
Data and Statistics	Represent and analyze data.	SR	1	1	2	5%
		TE	1	1		
		Total DS			2	5%
Total Grade 5 Mathematics					42	100%

Performance Event (PE): Each year the PE may align to any specific domain or to a group of domains. The PE contains multiple items and is worth 10 points.

ITEM TYPE KEY (item types in red are grade-specific)

SR	Multiple Choice Multi-Select (similar to Multiple Choice but with multiple correct responses)
TE	Angle Drawing (creating an angle) Bar Graph (creating a bar graph) Clock (setting the time on an analog clock) Coordinate Grid (graphing on a coordinate grid) Drag and Drop (dragging text or graphics into a drop area) Drop-Down Menu (selecting an option provided in a drop-down menu) Line Plot (creating a line plot) Matching Input (using a line to connect options in a left column with those in a right column) Number Line (graphing on a number line) Select Answers/Hot Spot (selecting areas in a graphic, such as placing checkmarks in a table) Text Input (keyboard/keypad entry in a response box)

Math Test Form Design

Session	Session Description	Total Operational Linking* Points	Total Unique Operational Points	Total Operational Points	Total Field Test Points	Total Points	Recommended Session Time (min)
1	Non-Calculator (All Domains)	12	9	21	3	24	35 – 50
2	Non-Calculator (All Domains)	12	9	21	2	23	35 – 50
3	Performance Event (Single Domain or Multiple Domains)	10	0	10	0	10	10 – 20
Total Grade 5 Mathematics		34	18	52	5	57	80 – 120

*The same anchor set will be used for between-form and between-administration linking.

Missouri Grade 6 Mathematics Test Blueprint and Test Design—2018 Administration

Math Core Points by Cluster (Content Category)

Domain (Reporting Category)	Cluster (Content Category)	Item Type	# of Core Items	Points Per Item	Total # of Points	Percent of Total
Ratios and Proportional Relationships	Understand and use ratios to solve problems.	SR	4	1	6	13%
		TE	2	1		
		Total RP			6	13%
Number Sense and Operations	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	SR	1	1	2	4%
		TE	1	1		
	Compute with non-negative multi-digit numbers, and find common factors and multiples.	SR	3	1	5	11%
		TE	2	1		
	Apply and extend previous understandings of numbers to the system of rational numbers.	SR	4	1	6	13%
		TE	2	1		
Total NS			13	28%		
Expressions, Equations and Inequalities	Apply and extend previous understandings of arithmetic to algebraic expressions.	SR	4	1	6	13%
		TE	2	1		
	Reason about and solve one-variable equations and inequalities.	SR	4	1	6	13%
		TE	2	1		
	Represent and analyze quantitative relationships between dependent and independent variables.	SR	2	1	3	7%
		TE	1	1		
Total EEI			15	33%		
Geometry and Measurement	Solve problems involving area, surface area and volume.	SR	4	1	6	13%
		TE	2	1		
		Total GM			6	13%
Data Analysis, Statistics and Probability	Develop understanding of statistical variability.	SR	2	1	3	7%
		TE	1	1		
	Summarize and describe distributions.	SR	1	1	3	7%
		TE	2	1		
	Total DSP			6	13%	
Total Grade 6 Mathematics					46	100%

Performance Event (PE): Each year the PE may align to any specific domain or to a group of domains. The PE contains multiple items and is worth 10 points.

ITEM TYPE KEY (item types in red are grade-specific)

SR	Multiple Choice Multi-Select (similar to Multiple Choice but with multiple correct responses)
TE	Angle Drawing (creating an angle) Bar Graph (creating a bar graph) Clock (setting the time on an analog clock) Coordinate Grid (graphing on a coordinate grid) Drag and Drop (dragging text or graphics into a drop area) Drop-Down Menu (selecting an option provided in a drop-down menu) Line Plot (creating a line plot) Matching Input (using a line to connect options in a left column with those in a right column) Number Line (graphing on a number line) Select Answers/Hot Spot (selecting areas in a graphic, such as placing checkmarks in a table) Text Input (keyboard/keypad entry in a response box)

Math Test Form Design

Session	Session Description	Total Operational Linking* Points	Total Unique Operational Points	Total Operational Points	Total Field Test Points	Total Points	Recommended Session Time (min)
1	Non-Calculator (Domains RP, NS, & EEI)	10	9	19	3	22	35 - 45
2	Calculator (All Domains Except RP)	15	12	27	2	29	45 - 60
3	Performance Event (Single Domain or Multiple Domains)	10	0	10	0	10	10 - 20
Total Grade 6 Mathematics		35	21	56	5	61	90 - 125

*The same anchor set will be used for between-form and between-administration linking.

Missouri Grade 7 Mathematics Test Blueprint and Test Design—2018 Administration

Math Core Points by Cluster (Content Category)

Domain (Reporting Category)	Cluster (Content Category)	Item Type	# of Core Items	Points Per Item	Total # of Points	Percent of Total
Ratios and Proportional Relationships	Analyze proportional relationships and use them to solve problems.	SR	7	1	10	22%
		TE	3	1		
		Total RP			10	22%
Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	SR	5	1	8	17%
		TE	3	1		
		Total NS			8	17%
Expressions, Equations and Inequalities	Use properties of operations to generate equivalent expressions.	SR	4	1	5	11%
		TE	1	1		
	Solve problems using numerical and algebraic expressions and equations.	SR	6	1	8	17%
		TE	2	1		
		Total EEI			13	28%
Geometry and Measurement	Draw and describe geometrical figures and describe the relationships between them.	SR	1	1	2	4%
		TE	1	1		
	Apply and extend previous understanding of angle measure, area and volume.	SR	3	1	5	11%
		TE	2	1		
		Total GM			7	15%
Data Analysis, Statistics and Probability	Use random sampling to draw inferences about a population.	SR	2	1	3	7%
		TE	1	1		
	Draw informal comparative inferences about two populations.	SR	1	1	2	4%
		TE	1	1		
	Develop, use and evaluate probability models.	SR	2	1	3	7%
		TE	1	1		
		Total DSP			8	17%
Total Grade 7 Mathematics					46	100%

Performance Event (PE): Each year the PE may align to any specific domain or to a group of domains. The PE contains multiple items and is worth 10 points.

ITEM TYPE KEY (item types in red are grade-specific)

SR	Multiple Choice Multi-Select (similar to Multiple Choice but with multiple correct responses)
TE	Angle Drawing (creating an angle)
	Bar Graph (creating a bar graph)
	Clock (setting the time on an analog clock)
	Coordinate Grid (graphing on a coordinate grid)
	Drag and Drop (dragging text or graphics into a drop area)
	Drop-Down Menu (selecting an option provided in a drop-down menu)
	Line Plot (creating a line plot)
	Matching Input (using a line to connect options in a left column with those in a right column)
	Number Line (graphing on a number line)
	Select Answers/Hot Spot (selecting areas in a graphic, such as placing checkmarks in a table)
Text Input (keyboard/keypad entry in a response box)	

Math Test Form Design

Session	Session Description	Total Operational Linking* Points	Total Unique Operational Points	Total Operational Points	Total Field Test Points	Total Points	Recommended Session Time (min)
1	Non-Calculator (Domains NS & EEI)	7	6	13	3	16	20 - 25
2	Calculator (All Domains Except NS)	18	15	33	2	35	60 - 80
3	Performance Event (Single Domain or Multiple Domains)	10	0	10	0	10	10 - 20
Total Grade 7 Mathematics		35	21	56	5	61	90 - 125

*The same anchor set will be used for between-form and between-administration linking.

Missouri Grade 8 Mathematics Test Blueprint and Test Design—2018 Administration

Math Core Points by Cluster (Content Category)						
Domain (Reporting Category)	Cluster (Content Category)	Item Type	# of Core Items	Points Per Item	Total # of Points	Percent of Total
Number Sense and Operations	Know that there are numbers that are not rational, and approximate them by rational numbers.	SR	2	1	4	9%
		TE	2	1		
		Total NS			4	9%
Expressions, Equations and Inequalities	Work with radicals and integer exponents.	SR	3	1	5	11%
		TE	2	1		
	Understand the connections between proportional relationships, lines and linear equations.	SR	3	1	4	9%
		TE	1	1		
	Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations.	SR	4	1	6	13%
		TE	2	1		
Total EEI			15	33%		
Geometry and Measurement	Understand congruence and similarity using physical models, transparencies or geometry software.	SR	2	1	4	9%
		TE	2	1		
	Understand and apply the Pythagorean Theorem.	SR	2	1	3	7%
		TE	1	1		
	Solve problems involving volume of cones, pyramids and spheres.	SR	3	1	4	9%
		TE	1	1		
Total GM			11	24%		
Data Analysis, Statistics and Probability	Investigate patterns of association in bivariate data.	SR	4	1	6	13%
		TE	2	1		
		Total DSP			6	13%
Functions	Define, evaluate and compare functions.	SR	4	1	5	11%
		TE	1	1		
	Use functions to model relationships between quantities.	SR	4	1	5	11%
		TE	1	1		
		Total F				
Total Grade 8 Mathematics					46	100%

Performance Event (PE): Each year the PE may align to any specific domain or to a group of domains. The PE contains multiple items and is worth 10 points.

ITEM TYPE KEY (item types in red are grade-specific)

SR	Multiple Choice Multi-Select (similar to Multiple Choice but with multiple correct responses)
TE	Angle Drawing (creating an angle) Bar Graph (creating a bar graph) Clock (setting the time on an analog clock) Coordinate Grid (graphing on a coordinate grid) Drag and Drop (dragging text or graphics into a drop area) Drop-Down Menu (selecting an option provided in a drop-down menu) Line Plot (creating a line plot) Matching Input (using a line to connect options in a left column with those in a right column) Number Line (graphing on a number line) Select Answers/Hot Spot (selecting areas in a graphic, such as placing checkmarks in a table) Text Input (keyboard/keypad entry in a response box)

Math Test Form Design

Session	Session Description	Total Operational Linking* Points	Total Unique Operational Points	Total Operational Points	Total Field Test Points	Total Points	Recommended Session Time (min)
1	Non-Calculator (Domains NS & EEI)	5	5	10	3	13	15 - 20
2	Calculator (All Domains Except NS)	20	16	36	2	38	65 - 85
3	Performance Event (Single Domain or Multiple Domains)	10	0	10	0	10	10 - 20
Total Grade 8 Mathematics		35	21	56	5	61	90 - 125

*The same anchor set will be used for between-form and between-administration linking.