

Mathematics  
Table of Specifications  
for the New  
Missouri Learning Standards  
Grades 3-8

**Missouri Mathematics Standards and Expectations Grade 3**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	3	Number Sense and Operations in Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic.	3.NBT.A.1	Round whole numbers to the nearest 10 or 100.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Number Sense and Operations in Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic.	3.NBT.A.2	Read, write and identify whole numbers within 100,000 using base ten numerals, number names and expanded form.	yes	SR (except MS), TE	1,2,3	0-4	0-4
Math	3	Number Sense and Operations in Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic.	3.NBT.A.3	Demonstrate fluency with addition and subtraction within 1000.	yes	SR (except MS), TE	1,2	0-3	0-3
Math	3	Number Sense and Operations in Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic.	3.NBT.A.4	Multiply whole numbers by multiples of 10 in the range 10-90.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	3.NF.A.1	Understand a unit fraction as the quantity formed by one part when a whole is partitioned into equal parts.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	3.NF.A.2.a	Understand that when a whole is partitioned equally, a fraction can be used to represent a portion of the whole. a. Describe the numerator as representing the number of pieces being considered.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	3.NF.A.2.b	Understand that when a whole is partitioned equally, a fraction can be used to represent a portion of the whole. b. Describe the denominator as the number of pieces that make the whole.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	3.NF.A.3.a	Represent fractions on a number line. a. Understand the whole is the interval from 0 to 1.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	3.NF.A.3.b	Represent fractions on a number line. b. Understand the whole is partitioned into equal parts.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	3.NF.A.3.c	Represent fractions on a number line. c. Understand a fraction represents the endpoint of the length a given number of partitions from 0.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	3.NF.A.4	Demonstrate that two fractions are equivalent if they are the same size, or the same point on a number line.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	3.NF.A.5	Recognize and generate equivalent fractions using visual models, and justify why the fractions are equivalent.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	3.NF.A.6	Compare two fractions with the same numerator or denominator using the symbols $>$ , $=$ or $<$ , and justify the solution.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Number Sense and Operations in Fractions	Develop understanding of fractions as numbers.	3.NF.A.7	Explain why fraction comparisons are only valid when the two fractions refer to the same whole.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Relationships and Algebraic Thinking	Represent and solve problems involving multiplication and division.	3.RA.A.1	Interpret products of whole numbers.	yes	SR (except MS), TE	1,2,3	0-1	0-1

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**Missouri Mathematics Standards and Expectations Grade 3**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	3	Relationships and Algebraic Thinking	Represent and solve problems involving multiplication and division.	3.RA.A.2	Interpret quotients of whole numbers.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Relationships and Algebraic Thinking	Represent and solve problems involving multiplication and division.	3.RA.A.3	Describe in words or drawings a problem that illustrates a multiplication or division situation.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Relationships and Algebraic Thinking	Represent and solve problems involving multiplication and division.	3.RA.A.4	Use multiplication and division within 100 to solve problems.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Relationships and Algebraic Thinking	Represent and solve problems involving multiplication and division.	3.RA.A.5	Determine the unknown number in a multiplication or division equation relating three whole numbers.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Relationships and Algebraic Thinking	Understand properties of multiplication and the relationship between multiplication and division.	3.RA.B.6	Apply properties of operations as strategies to multiply and divide.	yes	SR (except MS), TE	1,2,3	3	3
Math	3	Relationships and Algebraic Thinking	Multiply and divide within 100.	3.RA.C.7	Multiply and divide with numbers and results within 100 using strategies such as the relationship between multiplication and division or properties of operations. Know all products of two one-digit numbers.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Relationships and Algebraic Thinking	Multiply and divide within 100.	3.RA.C.8	Demonstrate fluency with products within 100.	yes	SR (except MS), TE	1,2	0-2	0-2
Math	3	Relationships and Algebraic Thinking	Use the four operations to solve word problems.	3.RA.D.9	Write and solve two-step problems involving variables using any of the four operations	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Relationships and Algebraic Thinking	Use the four operations to solve word problems.	3.RA.D.10	Interpret the reasonableness of answers using mental computation and estimation strategies including rounding.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Relationships and Algebraic Thinking	Identify and explain arithmetic patterns.	3.RA.E.11	Identify arithmetic patterns and explain the patterns using properties of operations.	yes	SR (except MS), TE	1,2,3	2	2
Math	3	Geometry and Measurement	Reason with shapes and their attributes.	3.GM.A.1	Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Geometry and Measurement	Reason with shapes and their attributes.	3.GM.A.2	Distinguish rhombuses and rectangles as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to these subcategories.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Geometry and Measurement	Reason with shapes and their attributes.	3.GM.A.3	Partition shapes into parts with equal areas, and express the area of each part as a unit fraction of the whole.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Geometry and Measurement	Solve problems involving the measurement of time, liquid volumes and weights of objects.	3.GM.B.4	Tell and write time to the nearest minute.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Geometry and Measurement	Solve problems involving the measurement of time, liquid volumes and weights of objects.	3.GM.B.5	Estimate time intervals in minutes.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Geometry and Measurement	Solve problems involving the measurement of time, liquid volumes and weights of objects.	3.GM.B.6	Solve problems involving addition and subtraction of minutes.	yes	SR (except MS), TE	1,2,3	0-1	0-1

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**Missouri Mathematics Standards and Expectations Grade 3**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	3	Geometry and Measurement	Solve problems involving the measurement of time, liquid volumes and weights of objects.	3.GM.B.7	Measure or estimate length, liquid volume and weight of objects.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Geometry and Measurement	Solve problems involving the measurement of time, liquid volumes and weights of objects.	3.GM.B.8	Use the four operations to solve problems involving lengths, liquid volumes or weights given in the same units.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Geometry and Measurement	Understand concepts of area.	3.GM.C.9	Calculate area by using unit squares to cover a plane figure with no gaps or overlaps.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Geometry and Measurement	Understand concepts of area.	3.GM.C.10	Label area measurements with squared units.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Geometry and Measurement	Understand concepts of area.	3.GM.C.11	Demonstrate that tiling a rectangle to find the area and multiplying the side lengths result in the same value.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Geometry and Measurement	Understand concepts of area.	3.GM.C.12	Multiply whole-number side lengths to solve problems involving the area of rectangles	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Geometry and Measurement	Understand concepts of area.	3.GM.C.13	Find rectangular arrangements that can be formed for a given area.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Geometry and Measurement	Understand concepts of area.	3.GM.C.14	Decompose a rectangle into smaller rectangles to find the area of the original rectangle.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Geometry and Measurement	Understand concepts of perimeter.	3.GM.D.15	Solve problems involving perimeters of polygons.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Geometry and Measurement	Understand concepts of perimeter.	3.GM.D.16	Understand that rectangles can have equal perimeters but different areas, or rectangles can have equal areas but different perimeters.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Data and Statistics	Represent and analyze data.	3.DS.A.1	Create frequency tables, scaled picture graphs and bar graphs to represent a data set with several categories.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Data and Statistics	Represent and analyze data.	3.DS.A.2	Solve one- and two-step problems using information presented in bar and/or picture graphs.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	3	Data and Statistics	Represent and analyze data.	3.DS.A.3	Create a line plot to represent data.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	3	Data and Statistics	Represent and analyze data.	3.DS.A.4	Use data shown in a line plot to answer questions.	yes	SR (except MS), TE	1,2,3	0-1	0-1

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**Missouri Mathematics Standards and Expectations Grade 3**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points	Cluster	Domain
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Reporting Categories	Percentage of Test	Total Items	Total Points
NBT	21%	9	9
NF	21%	9	9
RA	31%	13	13
GM	19%	8	8
DS	7%	3	3

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

**Missouri Mathematics Standards and Expectations Grade 4**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	4	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.	4.NBT.A.1	Round multi-digit whole numbers to any place.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	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.	4.NBT.A.2	Read, write and identify multi-digit whole numbers up to one million using number names, base ten numerals and expanded form.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	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.	4.NBT.A.3	Compare two multi-digit numbers using the symbols $>$ , $=$ or $<$ , and justify the solution.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	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.	4.NBT.A.4	Understand that in a multi-digit whole number, a digit represents 10 times what it would represent in the place to its right.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	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.	4.NBT.A.5	Demonstrate fluency with addition and subtraction of whole numbers.	yes	SR (except MS), TE	1,2	0-2	0-2
Math	4	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.	4.NBT.A.6	Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers, and justify the solution.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	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.	4.NBT.A.7	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, and justify the solution.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	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.)	4.NF.A.1	Explain and/or illustrate why two fractions are equivalent.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	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.)	4.NF.A.2	Recognize and generate equivalent fractions.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	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.)	4.NF.A.3	Compare two fractions using the symbols $>$ , $=$ or $<$ , and justify the solution.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Number Sense and Operations in Fractions	Extend understanding of operations on whole numbers to fraction operations.	4.NF.B.4	Understand addition and subtraction of fractions as joining/composing and separating/decomposing parts referring to the same whole.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Number Sense and Operations in Fractions	Extend understanding of operations on whole numbers to fraction operations.	4.NF.B.5	Decompose a fraction into a sum of fractions with the same denominator and record each decomposition with an equation and justification.	yes	SR (except MS), TE	1,2,3	0-1	0-1

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**Missouri Mathematics Standards and Expectations Grade 4**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	4	Number Sense and Operations in Fractions	Extend understanding of operations on whole numbers to fraction operations.	4.NF.B.6	Solve problems involving adding and subtracting fractions and mixed numbers with like denominators.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Number Sense and Operations in Fractions	Extend understanding of operations on whole numbers to fraction operations.	4.NF.B.7	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	4	Number Sense and Operations in Fractions	Extend understanding of operations on whole numbers to fraction operations.	4.NF.B.8	Solve problems involving multiplication of a fraction by a whole number.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	4	Number Sense and Operations in Fractions	Understand decimal notation for fractions, and compare decimal fractions. (Denominators of 10 or 100)	4.NF.C.9	Use decimal notation for fractions with denominators of 10 or 100.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Number Sense and Operations in Fractions	Understand decimal notation for fractions, and compare decimal fractions. (Denominators of 10 or 100)	4.NF.C.10	Understand that fractions and decimals are equivalent representations of the same quantity.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	4	Number Sense and Operations in Fractions	Understand decimal notation for fractions, and compare decimal fractions. (Denominators of 10 or 100)	4.NF.C.11	Read, write and identify decimals to the hundredths place using number names, base ten numerals and expanded form.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Number Sense and Operations in Fractions	Understand decimal notation for fractions, and compare decimal fractions. (Denominators of 10 or 100)	4.NF.C.12	Compare two decimals to the hundredths place using the symbols $>$ , $=$ or $<$ , and justify the solution	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	4	Relationships and Algebraic Thinking	Use the four operations with whole numbers to solve problems.	4.RA.A.1	Multiply or divide to solve problems involving a multiplicative comparison.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Relationships and Algebraic Thinking	Use the four operations with whole numbers to solve problems.	4.RA.A.2	Solve multi-step whole number problems involving the four operations and variables and using estimation to interpret the reasonableness of the answer.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Relationships and Algebraic Thinking	Use the four operations with whole numbers to solve problems.	4.RA.A.3	Solve whole number division problems involving variables in which remainders need to be interpreted, and justify the solution.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Relationships and Algebraic Thinking	Work with factors and multiples.	4.RA.B.4	Recognize that a whole number is a multiple of each of its factors and find the multiples for a given whole number.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Relationships and Algebraic Thinking	Work with factors and multiples.	4.RA.B.5	Determine if a whole number within 100 is composite or prime, and find all factor pairs for whole numbers within 100.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Relationships and Algebraic Thinking	Generate and analyze patterns.	4.RA.C.6	Generate a number pattern that follows a given rule.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Relationships and Algebraic Thinking	Generate and analyze patterns.	4.RA.C.7	Use words or mathematical symbols to express a rule for a given pattern.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Geometry and Measurement	Classify 2-dimensional shapes by properties of their lines and angles.	4.GM.A.1	Draw and identify points, lines, line segments, rays, angles, perpendicular lines and parallel lines.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Geometry and Measurement	Classify 2-dimensional shapes by properties of their lines and angles.	4.GM.A.2	Classify two-dimensional shapes by their sides and/or angles.	yes	SR (except MS), TE	1,2,3	0-2	0-2
Math	4	Geometry and Measurement	Classify 2-dimensional shapes by properties of their lines and angles.	4.GM.A.3	Construct lines of symmetry for a two-dimensional figure.	yes	SR (except MS), TE	1,2,3	0-1	0-1
Math	4	Geometry and Measurement	Understand the concepts of angle and measure angles.	4.GM.B.4	Identify and estimate angles and their measure.	yes	SR (except MS), TE	1,2,3	0-2	0-2

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**Missouri Mathematics Standards and Expectations Grade 4**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	4	Geometry and Measurement	Understand the concepts of angle and measure angles.	4.GM.B.5	Draw and measure angles in whole-number degrees using a protractor.	yes	SR (except MS), TE	1,2,3	0-2	0-2

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**Missouri Mathematics Standards and Expectations Grade 4**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points	Cluster	Domain
Math	4	Geometry and Measurement	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	4.GM.C.6.a	Know relative sizes of measurement units within one system of units. a. Convert measurements in a larger unit in terms of a smaller unit.	yes	SR (except MS), TE	1,2,3	0-2	0-2		
Math	4	Geometry and Measurement	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	4.GM.C.7	Use the four operations to solve problems involving distances, intervals of time, liquid volume, weight of objects and money.	yes	SR (except MS), TE	1,2,3	0-3	0-3		
Math	4	Geometry and Measurement	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	4.GM.C.8	Apply the area and perimeter formulas for rectangles to solve problems.	yes	SR (except MS), TE	1,2,3	0-2	0-2	5	10
Math	4	Data and Statistics	Represent and analyze data.	4.DS.A.1	Create a frequency table and/or line plot to display measurement data.	yes	SR (except MS), TE	1,2,3	0-2	0-2		
Math	4	Data and Statistics	Represent and analyze data.	4.DS.A.2	Solve problems involving addition and subtraction by using information presented in a data display.	yes	SR (except MS), TE	1,2,3	0-1	0-1		
Math	4	Data and Statistics	Represent and analyze data.	4.DS.A.3	Analyze the data in a frequency table, line plot, bar graph or picture graph.	yes	SR (except MS), TE	1,2,3	0-2	0-2	3	3

Reporting Categories	Percentage of Test	Total Items	Total Points
NBT	24%	10	10
NF	29%	12	12
RA	17%	7	7
GM	24%	10	10
DS	7%	3	3

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

**Missouri Mathematics Standards and Expectations Grade 5**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	5	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.	5.NBT.A.1	Read, write and identify numbers from billions to thousandths using number names, base ten numerals and expanded form.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	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.	5.NBT.A.2	Compare two numbers from billions to thousandths using the symbols $>$ , $=$ or $<$ , and justify the solution.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	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.	5.NBT.A.3	Understand that in a multi-digit number, a digit represents $\frac{1}{10}$ times what it would represent in the place to its left.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	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.	5.NBT.A.4	Evaluate the value of powers of 10 and understand the relationship to the place value system.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	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.	5.NBT.A.5	Round numbers from billions to thousandths place.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	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.	5.NBT.A.6	Add and subtract multi-digit whole numbers and decimals to the thousandths place, and justify the solution.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	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.	5.NBT.A.7	Multiply multi-digit whole numbers and decimals to the hundredths place, and justify the solution.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	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.	5.NBT.A.8	Divide multi-digit whole numbers and decimals to the hundredths place using up to two-digit divisors and four-digit dividends, and justify the solution.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	Number Sense and Operations in Fractions	Understand the relationship between fractions and decimals (denominators that are factors of 100).	5.NF.A.1	Understand that parts of a whole can be expressed as fractions and/or decimals.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	Number Sense and Operations in Fractions	Understand the relationship between fractions and decimals (denominators that are factors of 100).	5.NF.A.2	Convert decimals to fractions and fractions to decimals.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	Number Sense and Operations in Fractions	Understand the relationship between fractions and decimals (denominators that are factors of 100).	5.NF.A.3	Compare and order fractions and/or decimals to the thousandths place using the symbols $>$ , $=$ or $<$ , and justify the solution.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.4	Estimate results of sums, differences and products with fractions and decimals to the thousandths.	yes	SR,TE	1,2,3	0-3	0-3
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.5.a	Justify the reasonableness of a product when multiplying with fractions. a. Estimate the size of the product based on the size of the two factors.	yes	SR,TE	1,2,3	0-1	0-1

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 5**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.5.b	Justify the reasonableness of a product when multiplying with fractions. b. Explain why multiplying a given number by a fraction greater than 1 results in a product larger than the given number.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.5.c	Justify the reasonableness of a product when multiplying with fractions. c. Explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.5.d	Justify the reasonableness of a product when multiplying with fractions. d. Explain why multiplying the numerator and denominator by the same number is equivalent to multiplying the fraction by 1.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.6	Solve problems involving addition and subtraction of fractions and mixed numbers with unlike denominators, and justify the solution.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.7.a	Extend the concept of multiplication to multiply a fraction or whole number by a fraction. a. Recognize the relationship between multiplying fractions and finding the areas of rectangles with fractional side lengths.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.7.b	Extend the concept of multiplication to multiply a fraction or whole number by a fraction. b. Calculate and interpret the product of a fraction by a whole number and a whole number by a fraction.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.7.c	Extend the concept of multiplication to multiply a fraction or whole number by a fraction. c. Calculate and interpret the product of two fractions less than one.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.8.a	Extend the concept of division to divide unit fractions and whole numbers by using visual fraction models and equations. a. Calculate and interpret the quotient of a unit fraction by a non-zero whole number.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Number Sense and Operations in Fractions	Perform operations and solve problems with fractions and decimals.	5.NF.B.8.b	Extend the concept of division to divide unit fractions and whole numbers by using visual fraction models and equations. b. Calculate and interpret the quotient of a whole number by a unit fraction.	yes	SR,TE	1,2,3	0-1	0-1

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 5**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	5	Relationships and Algebraic Thinking	Represent and analyze patterns and relationships.	5.RA.A.1.a	Investigate the relationship between two numeric patterns. a. Generate two numeric patterns given two rules.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Relationships and Algebraic Thinking	Represent and analyze patterns and relationships.	5.RA.A.1.b	Investigate the relationship between two numeric patterns. b. Translate two numeric patterns into two sets of ordered pairs.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Relationships and Algebraic Thinking	Represent and analyze patterns and relationships.	5.RA.A.1.c	Investigate the relationship between two numeric patterns. c. Graph numeric patterns on the Cartesian coordinate plane.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Relationships and Algebraic Thinking	Represent and analyze patterns and relationships.	5.RA.A.1.d	Investigate the relationship between two numeric patterns. d. Identify the relationship between two numeric patterns.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Relationships and Algebraic Thinking	Represent and analyze patterns and relationships.	5.RA.A.2	Write a rule to describe or explain a given numeric pattern.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Relationships and Algebraic Thinking	Write and interpret numerical expressions.	5.RA.B.3	Write, evaluate and interpret numeric expressions using the order of operations	yes	SR,TE	1,2,3	0-2	0-2
Math	5	Relationships and Algebraic Thinking	Write and interpret numerical expressions.	5.RA.B.4	Translate written expressions into algebraic expressions.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Relationships and Algebraic Thinking	Use the four operations to represent and solve problems.	5.RA.C.5	Solve and justify multi-step problems involving variables, whole numbers, fractions and decimals	yes	SR,TE	1,2,3	2	2
Math	5	Geometry and Measurement	Classify two- and three-dimensional geometric shapes.	5.GM.A.1	Understand that attributes belonging to a category of figures also belong to all subcategories.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Geometry and Measurement	Classify two- and three-dimensional geometric shapes.	5.GM.A.2	Classify figures in a hierarchy based on properties.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Geometry and Measurement	Classify two- and three-dimensional geometric shapes.	5.GM.A.3	Analyze and describe the properties of prisms and pyramids.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	Geometry and Measurement	Understand and compute volume.	5.GM.B.4.a	Understand the concept of volume and recognize that volume is measured in cubic units. a. Describe a cube with edge length 1 unit as a "unit cube" and is said to have "one cubic unit" of volume and can be used to measure volume.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Geometry and Measurement	Understand and compute volume.	5.GM.B.4.b	Understand the concept of volume and recognize that volume is measured in cubic units. b. Understand that the volume of a right rectangular prism can be found by stacking multiple layers of the base.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Geometry and Measurement	Understand and compute volume.	5.GM.B.5	Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for volume of right rectangular prisms with whole-number edge lengths.	yes	SR,TE	1,2,3	0-2	0-2

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 5**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	5	Geometry and Measurement	Graph points on the Cartesian coordinate plane within the first quadrant to solve problems.	5.GM.C.6.a	Define a first quadrant Cartesian coordinate system. a. Represent the axes as scaled perpendicular number lines that both intersect at 0, the origin.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Geometry and Measurement	Graph points on the Cartesian coordinate plane within the first quadrant to solve problems.	5.GM.C.6.b	Define a first quadrant Cartesian coordinate system. b. Identify any point on the Cartesian coordinate plane by its ordered pair coordinates.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Geometry and Measurement	Graph points on the Cartesian coordinate plane within the first quadrant to solve problems.	5.GM.C.6.c	Define a first quadrant Cartesian coordinate system. c. Define the first number in an ordered pair as the horizontal distance from the origin.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Geometry and Measurement	Graph points on the Cartesian coordinate plane within the first quadrant to solve problems.	5.GM.C.6.d	Define a first quadrant Cartesian coordinate system. d. Define the second number in an ordered pair as the vertical distance from the origin.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Geometry and Measurement	Graph points on the Cartesian coordinate plane within the first quadrant to solve problems.	5.GM.C.7	Plot and interpret points in the first quadrant of the Cartesian coordinate plane.	yes	SR,TE	1,2,3	0-1	0-1
Math	5	Geometry and Measurement	Solve problems involving measurement and conversions within a measurement system.	5.GM.D.8	Convert measurements of capacity, length and weight within a given measurement system.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	Geometry and Measurement	Solve problems involving measurement and conversions within a measurement system.	5.GM.D.9	Solve multi-step problems that require measurement conversions.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	Data and Statistics	Represent and analyze data.	5.DS.A.1	Create a line graph to represent a data set, and analyze the data to answer questions and solve problems.	yes	SR,TE	1,2,3	0-2	0-2
Math	5	Data and Statistics	Represent and analyze data.	5.DS.A.2	Create a line plot to represent a given or generated data set, and analyze the data to answer questions and solve problems, recognizing the outliers and generating the median.	yes	SR,TE	1,2,3	0-2	0-2

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 5**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points	Cluster	Domain
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Reporting Categories	Percentage of Test	Total Items	Total Points
NBT	17%	7	7
NF	36%	15	15
RA	14%	6	6
GM	26%	11	11
DS	7%	3	3

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

**Missouri Mathematics Standards and Expectations Grade 6**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points	Cluster	Domain
Math	6	Ratios and Proportional Relationships	Understand and use ratios to solve problems.	6.RP.A.1	Understand a ratio as a comparison of two quantities and represent these comparisons.	yes	SR,TE	1,2,3	0-1	0-1		
Math	6	Ratios and Proportional Relationships	Understand and use ratios to solve problems.	6.RP.A.2	Understand the concept of a unit rate associated with a ratio, and describe the meaning of unit rate.	yes	SR,TE	1,2,3	0-1	0-1		
Math	6	Ratios and Proportional Relationships	Understand and use ratios to solve problems.	6.RP.A.3.a	Solve problems involving ratios and rates. a. Create tables of equivalent ratios, find missing values in the tables and plot the pairs of values on the Cartesian coordinate plane.	yes	SR,TE	1,2,3	0-2	0-2		
Math	6	Ratios and Proportional Relationships	Understand and use ratios to solve problems.	6.RP.A.3.b	Solve problems involving ratios and rates. b. Solve unit rate problems.	yes	SR,TE	1,2,3	0-2	0-2		
Math	6	Ratios and Proportional Relationships	Understand and use ratios to solve problems.	6.RP.A.3.c	Solve problems involving ratios and rates. c. Solve percent problems.	yes	SR,TE	1,2,3	0-2	0-2		
Math	6	Ratios and Proportional Relationships	Understand and use ratios to solve problems.	6.RP.A.3.d	Solve problems involving ratios and rates. d. Convert measurement units within and between two systems of measurement.	yes	SR,TE	1,2,3	0-1	0-1	6	6
Math	6	Number Sense and Operations	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	6.NS.A.1.a	Compute and interpret quotients of positive fractions. a. Solve problems involving division of fractions by fractions.	yes	SR,TE	1,2,3	1	1	1	
Math	6	Number Sense and Operations	Compute with non-negative multi-digit numbers, and find common factors and multiples.	6.NS.B.2	Demonstrate fluency with division of multi-digit whole numbers.	yes	SR,TE	1,2	0-1	0-1		
Math	6	Number Sense and Operations	Compute with non-negative multi-digit numbers, and find common factors and multiples.	6.NS.B.3	Demonstrate fluency with addition, subtraction, multiplication and division of decimals.	yes	SR,TE	1,2	0-2	0-2		
Math	6	Number Sense and Operations	Compute with non-negative multi-digit numbers, and find common factors and multiples.	6.NS.B.4.a	Find common factors and multiples. a. Find the greatest common factor (GCF) and the least common multiple (LCM).	yes	SR,TE	1,2,3	0-2	0-2		
Math	6	Number Sense and Operations	Compute with non-negative multi-digit numbers, and find common factors and multiples.	6.NS.B.4.b	Find common factors and multiples. b. Use the distributive property to express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers.	yes	SR,TE	1,2,3	0-1	0-1	4	
Math	6	Number Sense and Operations	Apply and extend previous understandings of numbers to the system of rational numbers.	6.NS.C.5	Use positive and negative numbers to represent quantities.	yes	SR,TE	1,2,3	0-1	0-1		
Math	6	Number Sense and Operations	Apply and extend previous understandings of numbers to the system of rational numbers.	6.NS.C.6.a	Locate a rational number as a point on the number line. a. Locate rational numbers on a horizontal or vertical number line.	yes	SR,TE	1,2,3	0-1	0-1		
Math	6	Number Sense and Operations	Apply and extend previous understandings of numbers to the system of rational numbers.	6.NS.C.6.b	Locate a rational number as a point on the number line. b. Write, interpret and explain problems of ordering of rational numbers.	yes	SR,TE	1,2,3	0-2	0-2		

**Missouri Mathematics Standards and Expectations Grade 6**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	6	Number Sense and Operations	Apply and extend previous understandings of numbers to the system of rational numbers.	6.NS.C.6.c	Locate a rational number as a point on the number line. c. Understand that a number and its opposite (additive inverse) are located on opposite sides of zero on the number line.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Number Sense and Operations	Apply and extend previous understandings of numbers to the system of rational numbers.	6.NS.C.7	Understand that the absolute value of a rational number is its distance from 0 on the number line.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Number Sense and Operations	Apply and extend previous understandings of numbers to the system of rational numbers.	6.NS.C.8	Extend prior knowledge to generate equivalent representations of rational numbers between fractions, decimals and percentages (limited to terminating decimals and/or benchmark fractions of 1/3 and 2/3).	yes	SR,TE	1,2,3	0-2	0-2
Math	6	Expressions, Equations and Inequalities	Apply and extend previous understandings of arithmetic to algebraic expressions.	6.EE1.A.1	Describe the difference between an expression and an equation.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Expressions, Equations and Inequalities	Apply and extend previous understandings of arithmetic to algebraic expressions.	6.EE1.A.2.a	Create and evaluate expressions involving variables and whole number exponents. a. Identify parts of an expression using mathematical terminology.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Expressions, Equations and Inequalities	Apply and extend previous understandings of arithmetic to algebraic expressions.	6.EE1.A.2.b	Create and evaluate expressions involving variables and whole number exponents. b. Evaluate expressions at specific values of the variables.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Expressions, Equations and Inequalities	Apply and extend previous understandings of arithmetic to algebraic expressions.	6.EE1.A.2.c	Create and evaluate expressions involving variables and whole number exponents. c. Evaluate non-negative rational number expressions.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Expressions, Equations and Inequalities	Apply and extend previous understandings of arithmetic to algebraic expressions.	6.EE1.A.2.d	Create and evaluate expressions involving variables and whole number exponents. d. Write and evaluate algebraic expressions.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Expressions, Equations and Inequalities	Apply and extend previous understandings of arithmetic to algebraic expressions.	6.EE1.A.2.e	Create and evaluate expressions involving variables and whole number exponents. e. Understand the meaning of the variable in the context of the situation.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Expressions, Equations and Inequalities	Apply and extend previous understandings of arithmetic to algebraic expressions.	6.EE1.A.3	Identify and generate equivalent algebraic expressions using mathematical properties.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Expressions, Equations and Inequalities	Reason about and solve one-variable equations and inequalities.	6.EE1.B.4	Use substitution to determine whether a given number in a specified set makes a one-variable equation or inequality true.	yes	SR,TE	1,2,3	0-2	0-2
Math	6	Expressions, Equations and Inequalities	Reason about and solve one-variable equations and inequalities.	6.EE1.B.5	Understand that if any solutions exist, the solution set for an equation or inequality consists of values that make the equation or inequality true.	yes	SR,TE	1,2,3	0-2	0-2

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 6**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	6	Expressions, Equations and Inequalities	Reason about and solve one-variable equations and inequalities.	6.EE1.B.6	Write and solve equations using variables to represent quantities, and understand the meaning of the variable in the context of the situation.	yes	SR,TE	1,2,3	0-2	0-2
Math	6	Expressions, Equations and Inequalities	Reason about and solve one-variable equations and inequalities.	6.EE1.B.7	Solve one-step linear equations in one variable involving non-negative rational numbers	yes	SR,TE	1,2,3	0-2	0-2
Math	6	Expressions, Equations and Inequalities	Reason about and solve one-variable equations and inequalities.	6.EE1.B.8.a	Recognize that inequalities may have infinitely many solutions. a. Write an inequality of the form $x > c$ , $x < c$ , $x \geq c$ , or $x \leq c$ to represent a constraint or condition.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Expressions, Equations and Inequalities	Reason about and solve one-variable equations and inequalities.	6.EE1.B.8.b	Recognize that inequalities may have infinitely many solutions. b. Graph the solution set of an inequality.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Expressions, Equations and Inequalities	Represent and analyze quantitative relationships between dependent and independent variables.	6.EE1.C.9.a	Identify and describe relationships between two variables that change in relationship to one another. a. Write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable.	yes	SR,TE	1,2,3	0-2	0-2
Math	6	Expressions, Equations and Inequalities	Represent and analyze quantitative relationships between dependent and independent variables.	6.EE1.C.9.b	Identify and describe relationships between two variables that change in relationship to one another. b. Analyze the relationship between the dependent and independent variables using graphs, tables and equations and relate these representations to each other.	yes	SR,TE	1,2,3	0-2	0-2
Math	6	Geometry and Measurement	Solve problems involving area, surface area and volume.	6.GM.A.1	Find the area of polygons by composing or decomposing the shapes into rectangles or triangles	yes	SR,TE	1,2,3	0-2	0-2
Math	6	Geometry and Measurement	Solve problems involving area, surface area and volume.	6.GM.A.2.a	Find the volume of right rectangular prisms. a. Understand that the volume of a right rectangular prism can be found by filling the prism with multiple layers of the base.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Geometry and Measurement	Solve problems involving area, surface area and volume.	6.GM.A.2.b	Find the volume of right rectangular prisms. b. Apply $V = l * w * h$ and $V = Bh$ to find the volume of right rectangular prisms.	yes	SR,TE	1,2,3	0-2	0-2
Math	6	Geometry and Measurement	Solve problems involving area, surface area and volume.	6.GM.A.3.a	Solve problems by graphing points in all four quadrants of the Cartesian coordinate plane. a. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the Cartesian coordinate plane	yes	SR,TE	1,2,3	0-1	0-1

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 6**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	6	Geometry and Measurement	Solve problems involving area, surface area and volume.	6.GM.A.3.b	Solve problems by graphing points in all four quadrants of the Cartesian coordinate plane. b. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Geometry and Measurement	Solve problems involving area, surface area and volume.	6.GM.A.3.c	Solve problems by graphing points in all four quadrants of the Cartesian coordinate plane. c. Find distances between points with the same first coordinate or the same second coordinate.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Geometry and Measurement	Solve problems involving area, surface area and volume.	6.GM.A.3.d	Solve problems by graphing points in all four quadrants of the Cartesian coordinate plane. d. Construct polygons in the Cartesian coordinate plane.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Geometry and Measurement	Solve problems involving area, surface area and volume.	6.GM.A.4.a	Solve problems using nets. a. Represent three-dimensional figures using nets made up of rectangles and triangles.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Geometry and Measurement	Solve problems involving area, surface area and volume.	6.GM.A.4.b	Solve problems using nets. b. Use nets to find the surface area of three-dimensional figures whose sides are made up of rectangles and triangles.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Data Analysis, Statistics and Probability	Develop understanding of statistical variability.	6.DSP.A.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Data Analysis, Statistics and Probability	Develop understanding of statistical variability.	6.DSP.A.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread and overall shape.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Data Analysis, Statistics and Probability	Develop understanding of statistical variability.	6.DSP.A.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary from a single number.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Data Analysis, Statistics and Probability	Summarize and describe distributions.	6.DSP.B.4.a	Display and interpret data. a. Use dot plots, histograms and box plots to display and interpret numerical data.	yes	SR,TE	1,2,3	0-2	0-2
Math	6	Data Analysis, Statistics and Probability	Summarize and describe distributions.	6.DSP.B.4.b	Display and interpret data. b. Create and interpret circle graphs.	yes	SR,TE	1,2,3	0-1	0-1
Math	6	Data Analysis, Statistics and Probability	Summarize and describe distributions.	6.DSP.B.5.a	Summarize numerical data sets in relation to the context. a. Report the number of observations.	yes	SR,TE	1,2,3	0-1	0-1

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 6**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	6	Data Analysis, Statistics and Probability	Summarize and describe distributions.	6.DSP.B.5.b	Summarize numerical data sets in relation to the context. b. Describe the nature of the attribute under investigation, including how it was measured and its units of measurement.	yes	SR,TE	1,2,3	0-1	0-1

Cluster Domain

**Missouri Mathematics Standards and Expectations Grade 6**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points	Cluster	Domain
Math	6	Data Analysis, Statistics and Probability	Summarize and describe distributions.	6.DSP.B.5.c	Summarize numerical data sets in relation to the context. c. Give quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context of the data.	yes	SR,TE	1,2,3	0-2	0-2		
Math	6	Data Analysis, Statistics and Probability	Summarize and describe distributions.	6.DSP.B.5.d	Summarize numerical data sets in relation to the context. d. Analyze the choice of measures of center and variability based on the shape of the data distribution and/or the context of the data.	yes	SR,TE	1,2,3	0-1	0-1	4	5

Reporting Categories	Percentage of Test	Total Items	Total Points
RP	13%	6	6
NS	26%	12	12
EEl	35%	16	16
GM	15%	7	7
DSP	11%	5	5

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

**Missouri Mathematics Standards and Expectations Grade 7**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	7	Ratios and Proportional Relationships	Analyze proportional relationships and use them to solve problems.	7.RP.A.1	Compute unit rates, including those that involve complex fractions, with like or different units.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Ratios and Proportional Relationships	Analyze proportional relationships and use them to solve problems.	7.RP.A.2.a	Recognize and represent proportional relationships between quantities. a. Determine when two quantities are in a proportional relationship.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Ratios and Proportional Relationships	Analyze proportional relationships and use them to solve problems.	7.RP.A.2.b	Recognize and represent proportional relationships between quantities. b. Identify and/or compute the constant of proportionality (unit rate).	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Ratios and Proportional Relationships	Analyze proportional relationships and use them to solve problems.	7.RP.A.2.c	Recognize and represent proportional relationships between quantities. c. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Ratios and Proportional Relationships	Analyze proportional relationships and use them to solve problems.	7.RP.A.2.d	Recognize and represent proportional relationships between quantities. d. Recognize that the graph of any proportional relationship will pass through the origin.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Ratios and Proportional Relationships	Analyze proportional relationships and use them to solve problems.	7.RP.A.3	Solve problems involving ratios, rates, percentages and proportional relationships.	yes	SR,TE	1,2,3	0-3	0-3
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.1.a	Apply and extend previous understandings of numbers to add and subtract rational numbers. a. Add and subtract rational numbers.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.1.b	Apply and extend previous understandings of numbers to add and subtract rational numbers. b. Represent addition and subtraction on a horizontal or vertical number line.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.1.c	Apply and extend previous understandings of numbers to add and subtract rational numbers. c. Describe situations and show that a number and its opposite have a sum of 0 (additive inverses).	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.1.d	Apply and extend previous understandings of numbers to add and subtract rational numbers. d. Understand subtraction of rational numbers as adding the additive inverse.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.1.e	Apply and extend previous understandings of numbers to add and subtract rational numbers. e. Determine the distance between two rational numbers on the number line is the absolute value of their difference.	yes	SR,TE	1,2,3	0-1	0-1

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 7**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.1.f	Apply and extend previous understandings of numbers to add and subtract rational numbers. f. Interpret sums and differences of rational numbers.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.2.a	Apply and extend previous understandings of numbers to multiply and divide rational numbers. a. Multiply and divide rational numbers.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.2.b	Apply and extend previous understandings of numbers to multiply and divide rational numbers. b. Determine that a number and its reciprocal have a product of 1 (multiplicative inverse).	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.2.c	Apply and extend previous understandings of numbers to multiply and divide rational numbers. c. Understand that every quotient of integers (with non-zero divisor) is a rational number.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.2.d	Apply and extend previous understandings of numbers to multiply and divide rational numbers. d. Convert a rational number to a decimal.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.2.e	Apply and extend previous understandings of numbers to multiply and divide rational numbers. e. Understand that all rational numbers can be written as fractions or decimal numbers that terminate or repeat.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.2.f	Apply and extend previous understandings of numbers to multiply and divide rational numbers. f. Interpret products and quotients of rational numbers by describing real-world contexts.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Number Sense and Operations	Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.	7.NS.A.3	Solve problems involving the four arithmetic operations with rational numbers.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Expressions, Equations and Inequalities	Use properties of operations to generate equivalent expressions.	7.EE1.A.1	Apply properties of operations to simplify and to factor linear algebraic expressions with rational coefficients.	yes	SR,TE	1,2,3	0-3	0-3
Math	7	Expressions, Equations and Inequalities	Use properties of operations to generate equivalent expressions.	7.EE1.A.2	Understand how to use equivalent expressions to clarify quantities in a problem.	yes	SR,TE	1,2,3	0-3	0-3

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 7**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	7	Expressions, Equations and Inequalities	Solve problems using numerical and algebraic expressions and equations.	7.EE1.B.3.a	Solve multi-step problems posed with rational numbers. a. Convert between equivalent forms of the same number.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Expressions, Equations and Inequalities	Solve problems using numerical and algebraic expressions and equations.	7.EE1.B.3.b	Solve multi-step problems posed with rational numbers. b. Assess the reasonableness of answers using mental computation and estimation strategies.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Expressions, Equations and Inequalities	Solve problems using numerical and algebraic expressions and equations.	7.EE1.B.4.a	Write and/or solve linear equations and inequalities in one variable. a. Write and/or solve equations of the form $x+p = q$ and $px = q$ in which $p$ and $q$ are rational numbers.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Expressions, Equations and Inequalities	Solve problems using numerical and algebraic expressions and equations.	7.EE1.B.4.b	Write and/or solve linear equations and inequalities in one variable. b. Write and/or solve two-step equations of the form $px + q = r$ and $p(x + q) = r$ , where $p$ , $q$ and $r$ are rational numbers, and interpret the meaning of the solution in the context of the problem.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Expressions, Equations and Inequalities	Solve problems using numerical and algebraic expressions and equations.	7.EE1.B.4.c	Write and/or solve linear equations and inequalities in one variable. c. Write, solve and/or graph inequalities of the form $px + q > r$ or $px + q < r$ , where $p$ , $q$ and $r$ are rational numbers.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Geometry and Measurement	Draw and describe geometrical figures and describe the relationships between them.	7.GM.A.1	Solve problems involving scale drawings of real objects and geometric figures, including computing actual lengths and areas from a scale drawing and reproducing the drawing at a different scale.	yes	SR,TE	1,2,3	0-2	0-2
Math	7	Geometry and Measurement	Draw and describe geometrical figures and describe the relationships between them.	7.GM.A.2.a	Use a variety of tools to construct geometric shapes. a. Determine if provided constraints will create a unique triangle through construction.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Geometry and Measurement	Draw and describe geometrical figures and describe the relationships between them.	7.GM.A.2.b	Use a variety of tools to construct geometric shapes. b. Construct special quadrilaterals given specific parameters.	no	NA	NA	0	0
Math	7	Geometry and Measurement	Draw and describe geometrical figures and describe the relationships between them.	7.GM.A.3	Describe two-dimensional cross sections of pyramids, prisms, cones and cylinders.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Geometry and Measurement	Draw and describe geometrical figures and describe the relationships between them.	7.GM.A.4.a	Understand concepts of circles. a. Analyze the relationships among the circumference, the radius, the diameter, the area and Pi in a circle.	yes	SR,TE	1,2,3	0-1	0-1

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 7**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points	Cluster	Domain
Math	7	Geometry and Measurement	Draw and describe geometrical figures and describe the relationships between them.	7.GM.A.4.b	Understand concepts of circles. b. Know and apply the formulas for circumference and area of circles to solve problems.	yes	SR,TE	1,2,3	0-2	0-2	3	
Math	7	Geometry and Measurement	Apply and extend previous understanding of angle measure, area and volume.	7.GM.B.5	Use angle properties to write and solve equations for an unknown angle.	yes	SR,TE	1,2,3	0-2	0-2		
Math	7	Geometry and Measurement	Apply and extend previous understanding of angle measure, area and volume.	7.GM.B.6.a	Understand the relationship between area, surface area and volume. a. Find the area of triangles, quadrilaterals and other polygons composed of triangles and rectangles.	yes	SR,TE	1,2,3	0-2	0-2		
Math	7	Geometry and Measurement	Apply and extend previous understanding of angle measure, area and volume.	7.GM.B.6.b	Understand the relationship between area, surface area and volume. b. Find the volume and surface area of prisms, pyramids and cylinders.	yes	SR,TE	1,2,3	0-3	0-3	3	6
Math	7	Data Analysis, Statistics and Probability	Use random sampling to draw inferences about a population.	7.DSP.A.1.a	Understand that statistics can be used to gain information about a population by examining a sample of the population. a. Understand that a sample is a subset of a population.	yes	SR,TE	1,2,3	0-1	0-1		
Math	7	Data Analysis, Statistics and Probability	Use random sampling to draw inferences about a population.	7.DSP.A.1.b	Understand that statistics can be used to gain information about a population by examining a sample of the population. b. Understand that generalizations from a sample are valid only if the sample is representative of the population.	yes	SR,TE	1,2,3	0-1	0-1		
Math	7	Data Analysis, Statistics and Probability	Use random sampling to draw inferences about a population.	7.DSP.A.1.c	Understand that statistics can be used to gain information about a population by examining a sample of the population. c. Understand that random sampling is used to produce representative samples and support valid inferences.	yes	SR,TE	1,2,3	0-1	0-1		
Math	7	Data Analysis, Statistics and Probability	Use random sampling to draw inferences about a population.	7.DSP.A.2	Use data from multiple samples to draw inferences about a population and investigate variability in estimates of the characteristic of interest.	yes	SR,TE	1,2,3	0-1	0-1	1	
Math	7	Data Analysis, Statistics and Probability	Draw informal comparative inferences about two populations.	7.DSP.B.3	Analyze different data distributions using statistical measures.	yes	SR,TE	1,2,3	0-2	0-2		
Math	7	Data Analysis, Statistics and Probability	Draw informal comparative inferences about two populations.	7.DSP.B.4	Compare the numerical measures of center, measures of frequency and measures of variability from two random samples to draw inferences about the population.	yes	SR,TE	1,2,3	0-2	0-2	2	
Math	7	Data Analysis, Statistics and Probability	Develop, use and evaluate probability models.	7.DSP.C.5.a	Investigate the probability of chance events. a. Determine probabilities of simple events.	yes	SR,TE	1,2,3	0-1	0-1		

**Missouri Mathematics Standards and Expectations Grade 7**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	7	Data Analysis, Statistics and Probability	Develop, use and evaluate probability models.	7.DSP.C.5.b	Investigate the probability of chance events. b. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Data Analysis, Statistics and Probability	Develop, use and evaluate probability models.	7.DSP.C.6.a	Investigate the relationship between theoretical and experimental probabilities for simple events. a. Predict outcomes using theoretical probability.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Data Analysis, Statistics and Probability	Develop, use and evaluate probability models.	7.DSP.C.6.b	Investigate the relationship between theoretical and experimental probabilities for simple events. b. Perform experiments that model theoretical probability.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Data Analysis, Statistics and Probability	Develop, use and evaluate probability models.	7.DSP.C.6.c	Investigate the relationship between theoretical and experimental probabilities for simple events. c. Compare theoretical and experimental probabilities.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Data Analysis, Statistics and Probability	Develop, use and evaluate probability models.	7.DSP.C.7.a	Explain possible discrepancies between a developed probability model and observed frequencies. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Data Analysis, Statistics and Probability	Develop, use and evaluate probability models.	7.DSP.C.7.b	Explain possible discrepancies between a developed probability model and observed frequencies. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Data Analysis, Statistics and Probability	Develop, use and evaluate probability models.	7.DSP.C.8.a	Find probabilities of compound events using organized lists, tables, tree diagrams and simulations. a. Represent the sample space of a compound event.	yes	SR,TE	1,2,3	0-1	0-1
Math	7	Data Analysis, Statistics and Probability	Develop, use and evaluate probability models.	7.DSP.C.8.b	Find probabilities of compound events using organized lists, tables, tree diagrams and simulations. b. Design and use a simulation to generate frequencies for compound events.	yes	SR,TE	1,2,3	0-1	0-1

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 7**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points	Cluster	Domain
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Reporting Categories	Percentage of Test	Total Items	Total Points
RP	24%	11	11
NS	20%	9	9
EEl	28%	13	13
GM	13%	6	6
DSP	15%	7	7

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

**Missouri Mathematics Standards and Expectations Grade 8**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	8	Number Sense and Operations	Know that there are numbers that are not rational, and approximate them by rational numbers.	8.NS.A.1.a	Explore the real number system. a. Know the differences between rational and irrational numbers.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Number Sense and Operations	Know that there are numbers that are not rational, and approximate them by rational numbers.	8.NS.A.1.b	Explore the real number system. b. Understand that all rational numbers have a decimal expansion that terminates or repeats.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Number Sense and Operations	Know that there are numbers that are not rational, and approximate them by rational numbers.	8.NS.A.1.c	Explore the real number system. c. Convert decimals which repeat into fractions and fractions into repeating decimals.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Number Sense and Operations	Know that there are numbers that are not rational, and approximate them by rational numbers.	8.NS.A.1.d	Explore the real number system. d. Generate equivalent representations of rational numbers.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Number Sense and Operations	Know that there are numbers that are not rational, and approximate them by rational numbers.	8.NS.A.2	Estimate the value and compare the size of irrational numbers and approximate their locations on a number line.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Expressions, Equations and Inequalities	Work with radicals and integer exponents.	8.EE1.A.1	Know and apply the properties of integer exponents to generate equivalent expressions.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Expressions, Equations and Inequalities	Work with radicals and integer exponents.	8.EE1.A.2.a	Investigate concepts of square and cube roots. a. Solve equations of the form $x^2 = p$ and $x^3 = p$ , where $p$ is a positive rational number.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Expressions, Equations and Inequalities	Work with radicals and integer exponents.	8.EE1.A.2.b	Investigate concepts of square and cube roots. b. Evaluate square roots of perfect squares less than or equal to 625 and cube roots of perfect cubes less than or equal to 1000.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Expressions, Equations and Inequalities	Work with radicals and integer exponents.	8.EE1.A.2.c	Investigate concepts of square and cube roots. c. Recognize that square roots of non-perfect squares are irrational.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Expressions, Equations and Inequalities	Work with radicals and integer exponents.	8.EE1.A.3	Express very large and very small quantities in scientific notation and approximate how many times larger one is than the other.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Expressions, Equations and Inequalities	Work with radicals and integer exponents.	8.EE1.A.4.a	Use scientific notation to solve problems. a. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Expressions, Equations and Inequalities	Work with radicals and integer exponents.	8.EE1.A.4.b	Use scientific notation to solve problems. b. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Expressions, Equations and Inequalities	Understand the connections between proportional relationships, lines and linear equations.	8.EE1.B.5.a	Graph proportional relationships. a. Interpret the unit rate as the slope of the graph.	yes	SR,TE	1,2,3	0-1	0-1

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 8**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	8	Expressions, Equations and Inequalities	Understand the connections between proportional relationships, lines and linear equations.	8.EE1.B.5.b	Graph proportional relationships. b. Compare two different proportional relationships.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Expressions, Equations and Inequalities	Understand the connections between proportional relationships, lines and linear equations.	8.EE1.B.6.a	Apply concepts of slope and y-intercept to graphs, equations and proportional relationships. a. Explain why the slope (m) is the same between any two distinct points on a non-vertical line in the Cartesian coordinate plane.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Expressions, Equations and Inequalities	Understand the connections between proportional relationships, lines and linear equations.	8.EE1.B.6.b	Apply concepts of slope and y-intercept to graphs, equations and proportional relationships. b. Derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Expressions, Equations and Inequalities	Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations.	8.EE1.C.7.a	Solve linear equations and inequalities in one variable. a. Create and identify linear equations with one solution, infinitely many solutions or no solutions.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Expressions, Equations and Inequalities	Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations.	8.EE1.C.7.b	Solve linear equations and inequalities in one variable. b. Solve linear equations and inequalities with rational number coefficients, including equations and inequalities whose solutions require expanding expressions using the distributive property and combining like terms.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Expressions, Equations and Inequalities	Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations.	8.EE1.C.8.a	Analyze and solve systems of linear equations. a. Graph systems of linear equations and recognize the intersection as the solution to the system.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Expressions, Equations and Inequalities	Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations.	8.EE1.C.8.b	Analyze and solve systems of linear equations. b. Explain why solution(s) to a system of two linear equations in two variables correspond to point(s) of intersection of the graphs.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Expressions, Equations and Inequalities	Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations.	8.EE1.C.8.c	Analyze and solve systems of linear equations. c. Explain why systems of linear equations can have one solution, no solution or infinitely many solutions.	yes	SR,TE	1,2,3	0-2	0-2

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 8**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	8	Expressions, Equations and Inequalities	Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations.	8.EE1.C.8.d	Analyze and solve systems of linear equations. d. Solve systems of two linear equations.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Geometry and Measurement	Understand congruence and similarity using physical models, transparencies or geometry software.	8.GM.A.1.a	Verify experimentally the congruence properties of rigid transformations. a. Verify that angle measure, betweenness, collinearity and distance are preserved under rigid transformations.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Geometry and Measurement	Understand congruence and similarity using physical models, transparencies or geometry software.	8.GM.A.1.b	Verify experimentally the congruence properties of rigid transformations. b. Investigate if orientation is preserved under rigid transformations.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Geometry and Measurement	Understand congruence and similarity using physical models, transparencies or geometry software.	8.GM.A.2.a	Understand that two-dimensional figures are congruent if a series of rigid transformations can be performed to map the pre-image to the image. a. Describe a possible sequence of rigid transformations between two congruent figures.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Geometry and Measurement	Understand congruence and similarity using physical models, transparencies or geometry software.	8.GM.A.3	Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Geometry and Measurement	Understand congruence and similarity using physical models, transparencies or geometry software.	8.GM.A.4.a	Understand that two-dimensional figures are similar if a series of transformations (rotations, reflections, translations and dilations) can be performed to map the pre-image to the image. a. Describe a possible sequence of transformations between two similar figures.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Geometry and Measurement	Understand congruence and similarity using physical models, transparencies or geometry software.	8.GM.A.5.a	Explore angle relationships and establish informal arguments. a. Derive the sum of the interior angles of a triangle.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Geometry and Measurement	Understand congruence and similarity using physical models, transparencies or geometry software.	8.GM.A.5.b	Explore angle relationships and establish informal arguments. b. Explore the relationship between the interior and exterior angles of a triangle.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Geometry and Measurement	Understand congruence and similarity using physical models, transparencies or geometry software.	8.GM.A.5.c	Explore angle relationships and establish informal arguments. c. Construct and explore the angles created when parallel lines are cut by a transversal.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Geometry and Measurement	Understand congruence and similarity using physical models, transparencies or geometry software.	8.GM.A.5.d	Explore angle relationships and establish informal arguments. d. Use the properties of similar figures to solve problems.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Geometry and Measurement	Understand and apply the Pythagorean Theorem.	8.GM.B.6	Use models to demonstrate a proof of the Pythagorean Theorem and its converse.	yes	SR,TE	1,2,3	0-1	0-1

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 8**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points	Cluster	Domain
Math	8	Geometry and Measurement	Understand and apply the Pythagorean Theorem.	8.GM.B.7	Use the Pythagorean Theorem to determine unknown side lengths in right triangles in problems in two- and three-dimensional contexts.	yes	SR,TE	1,2,3	0-2	0-2		
Math	8	Geometry and Measurement	Understand and apply the Pythagorean Theorem.	8.GM.B.8	Use the Pythagorean Theorem to find the distance between points in a Cartesian coordinate system.	yes	SR,TE	1,2,3	0-2	0-2	4	
Math	8	Geometry and Measurement	Solve problems involving volume of cones, pyramids and spheres.	8.GM.C.9.a	Solve problems involving surface area and volume. a. Understand the concept of surface area and find surface area of pyramids.	yes	SR,TE	1,2,3	0-2	0-2		
Math	8	Geometry and Measurement	Solve problems involving volume of cones, pyramids and spheres.	8.GM.C.9.b	Solve problems involving surface area and volume. b. Understand the concepts of volume and find the volume of pyramids, cones and spheres.	yes	SR,TE	1,2,3	0-2	0-2	2	12
Math	8	Data Analysis, Statistics and Probability	Investigate patterns of association in bivariate data.	8.DSP.A.1	Construct and interpret scatter plots of bivariate measurement data to investigate patterns of association between two quantities.	yes	SR,TE	1,2,3	0-2	0-2		
Math	8	Data Analysis, Statistics and Probability	Investigate patterns of association in bivariate data.	8.DSP.A.2	Generate and use a trend line for bivariate data, and informally assess the fit of the line.	yes	SR,TE	1,2,3	0-2	0-2		
Math	8	Data Analysis, Statistics and Probability	Investigate patterns of association in bivariate data.	8.DSP.A.3	Interpret the parameters of a linear model of bivariate measurement data to solve problems.	yes	SR,TE	1,2,3	0-2	0-2		
Math	8	Data Analysis, Statistics and Probability	Investigate patterns of association in bivariate data.	8.DSP.A.4.a	Understand the patterns of association in bivariate categorical data displayed in a two-way table. a. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects.	yes	SR,TE	1,2,3	0-2	0-2		
Math	8	Data Analysis, Statistics and Probability	Investigate patterns of association in bivariate data.	8.DSP.A.4.b	Understand the patterns of association in bivariate categorical data displayed in a two-way table. b. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.	yes	SR,TE	1,2,3	0-1	0-1	4	4
Math	8	Functions	Define, evaluate and compare functions.	8.F.A.1.a	Explore the concept of functions. (The use of function notation is not required.) a. Understand that a function assigns to each input exactly one output.	yes	SR,TE	1,2,3	0-1	0-1		
Math	8	Functions	Define, evaluate and compare functions.	8.F.A.1.b	Explore the concept of functions. (The use of function notation is not required.) b. Determine if a relation is a function.	yes	SR,TE	1,2,3	0-1	0-1		
Math	8	Functions	Define, evaluate and compare functions.	8.F.A.1.c	Explore the concept of functions. (The use of function notation is not required.) c. Graph a function.	yes	SR,TE	1,2,3	0-1	0-1		

**Missouri Mathematics Standards and Expectations Grade 8**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points
Math	8	Functions	Define, evaluate and compare functions.	8.F.A.2	Compare characteristics of two functions each represented in a different way.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Functions	Define, evaluate and compare functions.	8.F.A.3.a	Investigate the differences between linear and nonlinear functions. a. Interpret the equation $y = mx + b$ as defining a linear function, whose parameters are the slope (m) and the y-intercept (b).	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Functions	Define, evaluate and compare functions.	8.F.A.3.b	Investigate the differences between linear and nonlinear functions. b. Recognize that the graph of a linear function has a constant rate of change	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Functions	Define, evaluate and compare functions.	8.F.A.3.c	Investigate the differences between linear and nonlinear functions. c. Give examples of nonlinear functions.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Functions	Use functions to model relationships between quantities.	8.F.B.4.a	Use functions to model linear relationships between quantities. a. Explain the parameters of a linear function based on the context of a problem.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Functions	Use functions to model relationships between quantities.	8.F.B.4.b	Use functions to model linear relationships between quantities. b. Determine the parameters of a linear function.	yes	SR,TE	1,2,3	0-2	0-2
Math	8	Functions	Use functions to model relationships between quantities.	8.F.B.4.c	Use functions to model linear relationships between quantities. c. Determine the x-intercept of a linear function.	yes	SR,TE	1,2,3	0-1	0-1
Math	8	Functions	Use functions to model relationships between quantities.	8.F.B.5	Describe the functional relationship between two quantities from a graph or a verbal description.	yes	SR,TE	1,2,3	0-2	0-2

Cluster Domain

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**Missouri Mathematics Standards and Expectations Grade 8**

Content Area	Grade	Domain (Reporting Category)	Cluster (Content Category)	Expectation Code	Expectation	Assessable Large-Scale	Eligible Item Types	DOK Levels Available	Total Items	Total Points	Cluster	Domain
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Reporting Categories	Percentage of Test	Total Items	Total Points
NS	7%	3	4
EEl	39%	18	15
GM	26%	12	11
DSP	9%	4	6
F	20%	9	10

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