



SuccessMaker®

Massachusetts Curriculum Framework
for Mathematics 2017, Grade 5

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Massachusetts Curriculum Framework for Mathematics 2017 Grade 5	Item Code	SuccessMaker Item Description
(5.OA.A) Write and interpret numerical expressions.		
(5.OA.A.1) Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols, e.g., $(6 \times 30) + (6 \times \frac{1}{2})$.	SMMA_LO_01091	Evaluate an expression using the order of operations.
(5.NBT) Number and Operations in Base Ten		
(5.NBT.A) Understand the place value system.		
(5.NBT.A.1) Recognize that in a multi-digit number, including decimals, a digit in any place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	SMMA_LO_02045	Identify the place and the value of a digit in a number; for that value, identify the number 10 times as much and the number 1/10 as much.
(5.NBT.A.2) Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	SMMA_LO_02046	Explain patterns in the number of zeroes of the product and in the placement of the decimal point when multiplying a number by powers of ten.
	SMMA_LO_00911	Multiply whole numbers (multiples of 10 or 100).
(5.NBT.A.3) Read, write, and compare decimals to thousandths.	SMMA_LO_00213	Enter a decimal number on a number line (1.11 to 9.89).
	SMMA_LO_00215	Find the missing decimal number on a number line (1.0 to 9.89).
(5.NBT.A.3.a) Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.	SMMA_LO_00204	Match the word name with the decimal number (0.10 to 9.99).
	SMMA_LO_00224	Match a decimal number to an equivalent fraction (tenths to thousandths).
	SMMA_LO_00227	Match a decimal number to its word name (to thousandths).
	SMMA_LO_01089	Enter a decimal number in a place-value chart (tenths to thousandths).

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	SMMA_LO_00202	Identify the decimal number with a 0 to 9 in the tenths or hundredths place.
	SMMA_LO_00242	Match a decimal number to a model (thousandths).
	SMMA_LO_00241	Identify the place value of a digit in a decimal number (tenths to ten thousandths).
(5.NBT.A.3.b) Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.	SMMA_LO_00225	Compare decimal numbers (to thousandths).
	SMMA_LO_00236	Order three decimals from least to greatest (to thousandths).
	SMMA_LO_00254	Identify the symbol ($<$ or $>$) needed to complete the inequality.
	SMMA_LO_01103	Identify a list of decimal numbers ordered from least to greatest.
(5.NBT.A.4) Use place value understanding to round decimals to any place.	SMMA_LO_00230	Round a decimal to the nearest tenth, hundredth, or whole number.
(5.NBT.B) Perform operations with multi-digit whole numbers and with decimals to hundredths.		
(5.NBT.B.5) Fluently multiply multi-digit whole numbers. (Include two-digit \times four-digit numbers and, three-digit \times three-digit numbers) using the standard algorithm.	SMMA_LO_00900	Multiply whole numbers (student choice, products $10,000 \times 2$ to $99,999 \times 9$).
	SMMA_LO_00902	Multiply whole numbers (student choice, products 100×20 to 990×90 , multiples of 10).
	SMMA_LO_00903	Multiply whole numbers (student choice, products 21×11 to 99×99).
	SMMA_LO_00904	Multiply whole numbers (student choice, products 101×20 to 999×90 , multiples of 10).
	SMMA_LO_00905	Multiply whole numbers (student choice, products 100×21 to 990×90 , multiples of 10).
	SMMA_LO_00906	Multiply (student choice, products 1000×20 to 9999×90 , multiples of 10).

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	SMMA_LO_00907	Multiply whole numbers (student choice, products 101 x 21 to 999 x 99).
	SMMA_LO_00908	Multiply by a multiple of 10 (student choice, 10,000 x 20 to 99,999 x 90).
	SMMA_LO_00909	Multiply whole numbers (student choice, products 1000 x 21 to 9999 x 99).
	SMMA_LO_00910	Multiply whole numbers (student choice, 10,000 x 21 to 99,999 x 99).
	SMMA_LO_00912	Estimate the product of two numbers (factors 101 to 949).
	SMMA_LO_00913	Estimate the missing factor in a number sentence (round to the nearest ten, products 2,010 to 81,090).
	SMMA_LO_01078	Multiply one- to five-digit whole numbers by powers of ten (10 to 100,000).
	SMMA_LO_01622	Estimate the product by rounding each factor (a two-digit number by a three-digit number)
	SMMA_LO_01099	Estimate the product of three factors (1,000 to 350,000).
(5.NBT.B.6) Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	SMMA_LO_00291	Divide (combinations 2 x 20 to 5 x 90, three-digit dividend, one or two-digit divisor, no remainder).
	SMMA_LO_00293	Divide (combinations 6 x 20 to 9 x 90).
	SMMA_LO_00299	Multiply multiples of 10 using mental math (20 x 20 to 90 x 90).
	SMMA_LO_00303	Find the missing dividend or divisor (combinations 20_ 20 to 90_ 90).
	SMMA_LO_00315	Choose the best estimate for a long division problem (three-digit dividends, two-digit divisors).

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	SMMA_LO_01109	Estimate the sum, difference, product or quotient to solve a problem in context (round to the nearest thousand).
(5.NBT.B.7) Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction and between multiplication and division; relate the strategy to a written method and explain the reasoning used.	SMMA_LO_00159	Subtract metric length or weight measurements expressed as decimals (to tenths, difference 1.2 to 8.9, regrouping).
	SMMA_LO_00206	Add decimals using addition facts (sums 0.02-0.99).
	SMMA_LO_00207	Subtract decimals numbers (minuends and subtrahends 0.01 to 9.99).
	SMMA_LO_00208	Subtract money amounts (sums less than \$17.00, regrouping).
	SMMA_LO_00210	Add or subtract decimals using mental math (sums less than 1.00, with or without regrouping).
	SMMA_LO_00211	Align the decimal numbers in a vertical addition problem; then solve (hundredths, regrouping).
	SMMA_LO_00212	Align the decimal numbers in a vertical subtraction problem; then solve (hundredths, regrouping).
	SMMA_LO_00214	Subtract money amounts (sums less than \$50.00, regrouping).
	SMMA_LO_00217	Add decimals numbers using mental math (sums 1.0 to 99.8, regrouping).
	SMMA_LO_00219	Find the missing factor and quotient in two related number sentences (products 0.2×2 to 0.9×5).
	SMMA_LO_00220	Find the missing decimal number on a number line; then count by multiples of tenths to find the product.

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	SMMA_LO_00221	Multiply a decimal and a whole number displayed horizontally (0.02 x 2 to 0.09 x 5).
	SMMA_LO_00223	Multiply two decimals or multiply a decimal by a whole number (tenths to hundredths).
	SMMA_LO_00232	Multiply decimals displayed horizontally (0.2 x 0.6 to 0.9 x 0.12).
	SMMA_LO_00235	Multiply decimals by 10, 100, or 1000.
	SMMA_LO_00237	Divide a decimal by a decimal (horizontal division; dividends to tenths).
	SMMA_LO_00239	Divide a decimal by a whole number.
	SMMA_LO_00240	Determine the missing factor in the multiplication number sentence (decimals, to ten-thousandths).
	SMMA_LO_00245	Divide decimals (0.3 x 0.3 to 0.9 x 0.09).
	SMMA_LO_00251	Divide decimals (0 x 2 to 2 x 5).
	SMMA_LO_00252	Multiply a whole number or a decimal by 0.1, 0.01, or 0.001.
	SMMA_LO_00253	Find the missing decimal number in a pattern (addition).
	SMMA_LO_00263	Divide a decimal by 0.1, 0.01, or 0.001.
	SMMA_LO_00267	Divide a decimal by 0.1, 0.01, or 0.001 (dividends 0.001 to 0.999).
	SMMA_LO_00790	Find the perimeter of a polygon (decimal numbers, metric units).
	SMMA_LO_01327	Measure the amount of rainfall for the week; then complete the chart and determine the total amount of rainfall for the month.
	SMMA_LO_01629	Find the number of dollar bills needed to buy two to four items (each \$1.79 to \$3.99 each).
	SMMA_LO_01799	Solve a one-step equation with decimals in context (addition and subtraction).
	SMMA_LO_01840	Identify the rule for an iterative pattern.

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	SMMA_LO_02193	Represent quotients of decimals using objects and pictorial models, including area models.
	SMMA_LO_00192	Add two decimal numbers (tenths, sums 1.0 to 2.0, regrouping).
	SMMA_LO_00193	Add two decimal numbers using mental math (sums 1.1 to 9.9, no regrouping).
	SMMA_LO_00195	Subtract decimal numbers (minuends and subtrahends 0.1 to 9.9, no regrouping).
	SMMA_LO_00196	Add two decimal numbers using mental math (sums 10.1 to 99.9, no regrouping).
	SMMA_LO_00197	Subtract decimal numbers using mental math (minuends and subtrahends 10.1 to 99.9, no regrouping).
	SMMA_LO_00198	Subtract decimal numbers (minuends 2.0 to 9.9, subtrahends 0.1 to 0.9, regrouping).
	SMMA_LO_00199	Add decimal numbers (sums less than 10.0, regrouping).
	SMMA_LO_00201	Add two decimal numbers (sums 1.0 to 98.9, regrouping).
	SMMA_LO_00203	Subtract decimal numbers (minuends and subtrahends 0.1 to 99.9, with or without regrouping).
	SMMA_LO_00222	Identify the location of the decimal point of the product of two decimals (factors, tenths to hundredths).
	SMMA_LO_00231	Identify the best estimate of a sum, difference, or product.
	SMMA_LO_00238	Identify the best estimate for a quotient (decimal divided by a whole number).
	SMMA_LO_00250	Identify the probable error in a multiplication calculation with decimals.
	SMMA_LO_02506	Students apply operations on decimals to hundredths.

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(5.NF) Number and Operations—Fractions		
(5.NF.A) Use equivalent fractions as a strategy to add and subtract fractions.		
(5.NF.A.1) Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	SMMA_LO_00464	Subtract a fraction from 1; simplify (halves to sixteenths).
	SMMA_LO_00465	Add fractions; no simplifying (unlike denominators).
	SMMA_LO_00466	Subtract fractions; no simplifying (unlike denominators).
	SMMA_LO_00467	Add fractions; no simplifying (unlike denominators).
	SMMA_LO_00468	Subtract fractions; no simplifying (unlike denominators).
	SMMA_LO_00471	Add fractions; simplify if necessary (unlike denominators).
	SMMA_LO_00472	Subtract fractions; simplify if necessary (unlike denominators).
	SMMA_LO_00473	Add fractions; simplify if necessary (unlike denominators).
	SMMA_LO_00474	Subtract fractions; simplify if necessary (unlike denominators).
	SMMA_LO_00484	Add mixed numbers; simplify if necessary (like denominators).
	SMMA_LO_00494	Determine the equivalent fractions using the least common denominator of two given fractions.
	SMMA_LO_00499	Add mixed numbers; simplify if necessary (unlike denominators).
	SMMA_LO_00500	Subtract mixed numbers; simplify if necessary (unlike denominators).
	SMMA_LO_00504	Add mixed numbers; simplify if necessary (unlike denominators).
	SMMA_LO_00505	Subtract mixed numbers; simplify if necessary (unlike denominators).
	SMMA_LO_00509	Add mixed numbers within a context; simplify if necessary (unlike denominators).

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	SMMA_LO_00510	Subtract mixed numbers within a context; simplify if necessary (unlike denominators).
	SMMA_LO_01640	Add two fractional parts of whole numbers in context.
(5.NF.A.2) Solve word problems involving addition and subtraction of fractions referring to the same whole (the whole can be a set of objects), including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	SMMA_LO_01095	Estimate the sum, product, or quotient in problems with fractions.
	SMMA_LO_01634	Subtract two fractions from a whole within a context.
	SMMA_LO_01706	Use addition to find an equivalent fraction for $\frac{1}{2}$.
	SMMA_LO_01707	Estimate the difference of two fractions.
(5.NF.B) Apply and extend previous understandings of multiplication and division to multiply and divide fractions.		
(5.NF.B.3) Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	SMMA_LO_02047	Model a division word problem that results in a rational quotient; then express the word problem with an equation.
(5.NF.B.4) Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	SMMA_LO_00469	Multiply fractions; no simplifying.
	SMMA_LO_00470	Multiply a whole number by a proper fraction; no simplifying.
	SMMA_LO_00475	Multiply fractions; simplify.
	SMMA_LO_00476	Multiply fractions; simplify first.
	SMMA_LO_00477	Multiply a fraction and a whole number; simplify.
	SMMA_LO_00478	Multiply a fraction and a whole number; simplify first.

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	SMMA_LO_00498	Find a fractional part of a fraction.
	SMMA_LO_00506	Multiply three fractions; simplify if necessary.
	SMMA_LO_02507	Multiply fractions by fractions.
(5.NF.B.4.a) Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.	SMMA_LO_02048	Model multiplication of a whole number by a fraction; complete an equation to show the product; interpret a real-world context that can be modeled by this equation.
	SMMA_LO_02054	Model the multiplication of two fractions; complete an equation to show the product; interpret a real-world context that can be modeled by this equation.
(5.NF.B.4.b) Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	SMMA_LO_02049	Find the area of a rectangle with fractional side lengths in two ways: by multiplying its side lengths and by tiling it with smaller rectangles.
(5.NF.B.5) Interpret multiplication as scaling (resizing), by:		
(5.NF.B.5.a) Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	SMMA_LO_02050	Determine whether multiplying a number by a factor results in scaling the number up or down.
(5.NF.B.5.b) Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.	SMMA_LO_02051	Determine whether multiplying a number by a factor results in scaling the number up or down.

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(5.NF.B.6) Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	SMMA_LO_00835	Find the fractional part of a recipe (multiply a fraction and a mixed number).
	SMMA_LO_00501	Multiply mixed numbers; simplify if necessary.
(5.NF.B.7) Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.		
(5.NF.B.7.a) Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.	SMMA_LO_02052	Model the division of a unit fraction by a nonzero whole number, and compute the quotient.
(5.NF.B.7.b) Interpret division of a whole number by a unit fraction, and compute such quotients.	SMMA_LO_01787	Divide a whole number by a fraction; simplify if necessary.
	SMMA_LO_02053	Use models to solve real-world problems involving division of whole numbers by unit fractions.
(5.NF.B.7.c) Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.	SMMA_LO_02156	Use models to solve real-world problems involving division of unit fractions by nonzero whole numbers.
(5.MD) Measurement and Data		
(5.MD.A) Convert like measurement units within a given measurement system.		
(5.MD.A.1) Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems.	SMMA_LO_00168	Add metric measurements with unlike units and express the sum in terms of the smaller unit.
	SMMA_LO_00172	Add metric measurements with unlike units and express the sum in terms of the larger unit.
	SMMA_LO_00791	Convert customary units of length (inches, feet, and yards).
	SMMA_LO_00796	Convert customary units of capacity (cups, pints, quarts, and gallons).

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	SMMA_LO_00797	Convert between customary units of weight (ounces and pounds).
	SMMA_LO_00801	Compare unlike customary units of weight and identify the correct statement (ounces and pounds).
	SMMA_LO_00814	Convert metric units of length (mm, cm, m, and km; whole numbers).
(5.MD.C) Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition.		
(5.MD.C.3) Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	SMMA_LO_00826	Determine if the perimeter, area, or volume is needed to solve the problem.
(5.MD.C.3.a) A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.	SMMA_LO_02041	Identify a unit cube and what attribute it is used to measure.
(5.MD.C.3.b) A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.	SMMA_LO_02042	Find the volume of a prism by packing the prism with unit cubes.
(5.MD.C.4) Measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and non-standard units.	SMMA_LO_00829	Find the volume of a rectangular solid by counting cubes.
	SMMA_LO_00833	Find the volume of a rectangular solid by counting cubes.
(5.MD.C.5) Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.		
(5.MD.C.5.a) Find the volume of a right rectangular prism with whole-number edge lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.	SMMA_LO_02042	Find the volume of a prism by packing the prism with unit cubes.

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(5.MD.C.5.b) Apply the formula $V = l \times w \times h$ and $V = B \times h$ (where B stands for the area of the base) for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems.	SMMA_LO_00174	Determine the volume of a box given the height, width, and length (60 to 480 customary or metric cubic units).
	SMMA_LO_02043	Compute the volume of right rectangular prisms using formulas.
(5.MD.C.5.c) Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems.	SMMA_LO_02044	Find the volume of a three-dimensional figure by decomposing that figure into two right rectangular prisms and then adding those prisms' volumes.
	SMMA_LO_02508	Calculate volume of figures with whole number dimensions
(5.G) Geometry		
(5.G.A) Graph points on the coordinate plane to solve real-world and mathematical problems.		
(5.G.A.1) Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the zero on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x -axis and x -coordinate, y -axis and y -coordinate).	SMMA_LO_01057	Identify a point on a grid given an ordered pair, or identify the ordered pair for a point shown on the grid.
	SMMA_LO_01077	Find the coordinates for a point on a grid.
	SMMA_LO_01092	Identify a point on a coordinate grid given the ordered pair.

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(5.G.A.2) Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	SMMA_LO_01178	Find the amount of increase or decrease between two points in a line graph.
	SMMA_LO_01206	Read and interpret a line graph.
	SMMA_LO_01324	Interpret a line graph with time and temperature data, and add a point to line graph.
	SMMA_LO_01325	Given the survival needs for a bug, interpret a line graph with time and temperature data.
	SMMA_LO_01735	Graph a point on a coordinate grid (Quadrant I).
	SMMA_LO_01057	Identify a point on a grid given an ordered pair, or identify the ordered pair for a point shown on the grid.
	SMMA_LO_01077	Find the coordinates for a point on a grid.
	SMMA_LO_01092	Identify a point on a coordinate grid given the ordered pair.
	SMMA_LO_01808	Graph a set of ordered pairs from a table on a coordinate plane (Quadrant I).
	SMMA_LO_01697	Create a line graph using data from a table.
	SMMA_LO_01771	Create a line graph.
(5.G.B) Classify two-dimensional figures into categories based on their properties.		
(5.G.B.4) Classify two-dimensional figures in a hierarchy based on properties.	SMMA_LO_00651	Identify the regular polygons.
	SMMA_LO_00656	Identify the true statement about a relationship among quadrilaterals.
	SMMA_LO_00658	Identify equilateral, isosceles, and scalene triangles.