



SuccessMaker®

**Minnesota
State Standards
Alignments for Mathematics**

Providing rigorous mathematics intervention
for K-8 learners with unparalleled precision

MN Standard	MN Standard Text	Item Description	Item ID
K.1.1.1	Recognize that a number can be used to represent how many objects are in a set or to represent the position of an object in a sequence. For example: Count students standing in a circle and count the same students after they take their seats. Recognize that this rearrangement does not change the total number, but may change the order in which students are counted.	Enter the number shown (1 to 5).	SMMA_LO_00932
		Count objects arranged in a row (1-5 objects).	SMMA_LO_00933
		Count objects not arranged in a row (1 to 5 objects).	SMMA_LO_00935
		Count specific objects within a larger set (1 to 6 objects).	SMMA_LO_00936
		Find the next number in a sequence, counting by 1's (1 to 5).	SMMA_LO_00940
		Enter the number shown (1 to 9).	SMMA_LO_00942
		Count objects not arranged in a row (6 to 9 objects).	SMMA_LO_00943
		Count objects arranged in a row (one to nine objects).	SMMA_LO_00957
		Count specific objects within a larger set (6 to 9 objects).	SMMA_LO_00958
		Identify a number, model, or word with the same value (1 to 9).	SMMA_LO_00965
		R: Match objects to show a one-to-one correspondence (2 to 5 objects).	SMMA_LO_00921
		R: Move objects to show a one-to-one correspondence (1 to 5 objects).	SMMA_LO_00925
		K.1.1.2	Read, write, and represent whole numbers from 0 to at least 31. Representations may include numerals, pictures, real objects and picture graphs, spoken words, and manipulatives such as connecting cubes. For example: Represent the number of students taking hot lunch with tally marks.
Enter the number shown (5 to 9).	SMMA_LO_00002		
Match a digit to a set with that number of objects (0 to 5).	SMMA_LO_00934		
Identify a number from a spoken number (1 to 5).	SMMA_LO_00937		
Identify a number from a spoken number (6 to 9).	SMMA_LO_00944		
Identify the group of objects that represent a number (1 to 5 objects).	SMMA_LO_00956		
Identify the number of objects for a word name. (1 to 9 objects).	SMMA_LO_00964		
Identify a number, model, or word with the same value (1 to 9).	SMMA_LO_00965		
K.1.1.3	Count, with and without objects, forward and backward to at least 20.	Make a group with one to five objects.	SMMA_LO_00938
		Make a group with 6 to 9 objects.	SMMA_LO_00945
		Find a missing number in a sequence, counting by 1's (1 to 20).	SMMA_LO_00951
		Find a missing number in a sequence, counting by 1's (1 to 9).	SMMA_LO_00960
		Find a missing number in a sequence, counting by 1's (10 to 20).	SMMA_LO_00970
		Count objects by pairing each object with one number 1 to 10; determine how many objects there are.	SMMA_LO_02092
K.1.1.4	Find a number that is 1 more or 1 less than a given number.	Make a group with one more object than a given group (one to five objects).	SMMA_LO_00927
		Make a group with one fewer object than a given group (1 to 5 objects).	SMMA_LO_00928
		Make a group with one more object than a given group (six to nine objects).	SMMA_LO_00930

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K.1.1.4	Find a number that is 1 more or 1 less than a given number.	Make a group with one fewer object than a given group (6 to 9 objects).	SMMA_LO_00931
		Find the next number in a sequence, counting by 1's (1 to 5).	SMMA_LO_00939
		Find the next number in a sequence, counting by 1's (1 to 9).	SMMA_LO_00948
		Find the number that comes before a given number, counting by 1's (1 to 9).	SMMA_LO_00949
		Create a set with one more object than a given set (1 to 9 objects).	SMMA_LO_00954
		Create a set with one fewer object than a given set (1 to 9 objects).	SMMA_LO_00955
		Count objects by pairing each object with one number 1 to 10; determine how many objects there are when 1 more is added.	SMMA_LO_02093
K.1.1.5	Compare and order whole numbers, with and without objects, from 0 to 20. For example: Put the number cards 7, 3, 19 and 12 in numerical order.	Identify a set with the same number of objects as a given set (1 to 5 objects).	SMMA_LO_00922
		Identify a group with more objects than a given group (1 to 5 objects).	SMMA_LO_00923
		Identify a group with fewer objects than a given group (1 to 5 objects).	SMMA_LO_00924
		Make a set with the same number of objects as a given set (1 to 5 objects).	SMMA_LO_00926
		Make a group with the same number of objects as a given group (6 to 9 objects).	SMMA_LO_00929
		Identify a number that is greater than or less than a spoken number (1 to 9).	SMMA_LO_00946
		Identify the number with the greatest value (1 to 9).	SMMA_LO_00947
		Order four numbers from least to greatest (1 to 9).	SMMA_LO_00950
		Create a set with the same, more, or fewer number of objects than a given group (1 to 9 objects).	SMMA_LO_00953
		Identify the group with the greatest number of shapes of a given type (1 to 6).	SMMA_LO_00959
		Identify two numbers that make an inequality true (0 to 9).	SMMA_LO_00994
K.1.2.1	Use objects and draw pictures to find the sums and differences of numbers between 0 and 10.	Count two sets of objects to find the total (sums 2 to 4).	SMMA_LO_00003
		Count two sets of objects to find the total (sums 4 to 6).	SMMA_LO_00004
		Count two sets of objects to find the total (sums 2 to 5).	SMMA_LO_00005
		Count two sets of objects to find the total (sums 6 to 10).	SMMA_LO_00006
		Count the objects in two sets (sums 1 to 5).	SMMA_LO_00007
		Count the objects in two sets (sums 6 to 10).	SMMA_LO_00008
		Add using basic math facts (sums 1 to 5).	SMMA_LO_00010

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K.1.2.1	Use objects and draw pictures to find the sums and differences of numbers between 0 and 10.	Add using basic math facts displayed horizontally (sums 2 to 5).	SMMA_LO_00011
		Add zero to a number (sums 1 to 9).	SMMA_LO_00035
		Write an addition number sentence to represent a picture (sums 1 to 9).	SMMA_LO_00036
		Identify sets of objects that combined have a given sum (sums 6 to 9).	SMMA_LO_00726
		Solve a subtraction problem in context (minuends 2 to 5, pictorial models).	SMMA_LO_01411
		Solve a subtraction problem in context (minuends 2 to 5, pictorial models).	SMMA_LO_01412
		Subtract using basic math facts (minuends 2 to 10).	SMMA_LO_01413
		Subtract using basic math facts displayed horizontally (minuends 0 to 5).	SMMA_LO_01415
		Subtract using basic math facts (minuends 0 to 5).	SMMA_LO_01416
		Subtract using basic math facts displayed horizontally (minuends 6 to 9).	SMMA_LO_01417
		Identify the pictorial solution to a subtraction problem (minuends 2 to 9).	SMMA_LO_01422
		Identify the pictorial solution to a problem in context (minuends 4 to 9).	SMMA_LO_01423
		Solve a problem in context by adding or subtracting 1.	SMMA_LO_01535
		Act out the solution to a subtraction problem in context (minuends 1 to 6).	SMMA_LO_01536
		Solve an addition problem in context (same objects, sums 2 to 5).	SMMA_LO_01540
		Model and apply joining stories to solve problems (sums 1 to 9).	SMMA_LO_01863
		R: Identify a picture that represents an addition problem (sums 2 to 6).	SMMA_LO_01228
		R: Identify a picture that represents a subtraction problem (minuends 5 to 10).	SMMA_LO_01235
		R: Identify the expression that represents a picture (minuends 2 to 9).	SMMA_LO_01414
		K.1.2.2	Compose and decompose numbers up to 10 with objects and pictures. For example: A group of 7 objects can be decomposed as 5 and 2 objects, or 2 and 3 and 2, or 6 and 1.
Enter the number equal to 1 to 9 ones.	SMMA_LO_00973		
Given a number (1-9) of objects, determine how many more objects are needed to make a ten.	SMMA_LO_02017		
Decompose numbers 2–10 into pairs in more than one way by using objects.	SMMA_LO_02096		
K.2.1.1	Identify, create, complete, and extend simple patterns using shape, color, size, number, sounds and movements. Patterns may be repeating, growing or shrinking such as ABB, ABB, ABB or ●,●●,●●●.	Extend a 1-2-1-2 pattern of pictures.	SMMA_LO_00519
		Extend a 1-2-1-2 pattern of geometric figures.	SMMA_LO_00520
		Identify the missing geometric figure in a 1-2-1-2 pattern.	SMMA_LO_00591
K.3.1.1	Recognize basic two- and three-dimensional shapes such as squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, cones, cylinders and spheres.	Identify circles or squares by name.	SMMA_LO_00529
		Identify triangles or rectangles by name.	SMMA_LO_00530
		Identify a geometric figure (circle, triangle, rectangle, or square).	SMMA_LO_00531
		Identify circles or squares by name.	SMMA_LO_00544

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K.3.1.1	Recognize basic two- and three-dimensional shapes such as squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, cones, cylinders and spheres.	Identify triangles or rectangles by name.	SMMA_LO_00546
		Identify 3-, 4-, and 5-sided figures.	SMMA_LO_00550
		Identify a shape by two positive tests, e.g., red, circle.	SMMA_LO_00565
		Match a geometric figure to its name (circle, triangle, square, or rectangle).	SMMA_LO_00568
		Identify the figure that is not of a given type (rectangle or triangle).	SMMA_LO_00571
		Identify a geometric solid (cylinder, pyramid, or rectangular prism).	SMMA_LO_00616
		Identify geometric solids (cones, cubes, cylinders, pyramids, rectangular prisms, spheres).	SMMA_LO_00622
		Identify the group with the greatest number of shapes of a given type (1 to 6).	SMMA_LO_00959
K.3.1.2	Sort objects using characteristics such as shape, size, color and thickness.	Match simple geometric figures that have the same size, shape, and color.	SMMA_LO_00514
		Match pictures that are identical.	SMMA_LO_00515
		Match geometric figures that have the same size and shape (simple figures).	SMMA_LO_00516
		Match pictures with shapes that are alike.	SMMA_LO_00517
		Match the face of a geometric solid to a plane figure.	SMMA_LO_00518
		Move puzzle pieces to complete a puzzle (2 pieces).	SMMA_LO_00534
		Identify the figure that is a different color from a given figure.	SMMA_LO_00541
		Match congruent irregular polygons.	SMMA_LO_00545
		Identify the figure with a different shape.	SMMA_LO_00547
		Match a shape to a picture containing that shape.	SMMA_LO_00548
		Identify shapes that are alike.	SMMA_LO_00549
		Match similar irregular polygons.	SMMA_LO_00555
		Identify matching congruent figures under rotation and/or reflection.	SMMA_LO_00557
		Match similar figures in different orientations.	SMMA_LO_00566
		Identify matching congruent geometric solids.	SMMA_LO_00567
		Identify similar three-dimensional figures.	SMMA_LO_00592
K.3.1.3	Use basic shapes and spatial reasoning to model objects in the real-world. For example: A cylinder can be used to model a can of soup. Another example: Find as many rectangles as you can in your classroom. Record the rectangles you found by making drawings.	Identify the object modeled by a geometric figure.	SMMA_LO_00570
		Count the geometric figures in a picture.	SMMA_LO_00572
		Identify the object that is a different length.	SMMA_LO_00709
		Identify the rectangle with the same size and shape as a given rectangle.	SMMA_LO_00736

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K.3.2.1	Use words to compare objects according to length, size, weight and position. For example: Use same, lighter, longer, above, between and next to. Another example: Identify objects that are near your desk and objects that are in front of it. Explain why there may be some objects in both groups.	Identify the object on the top, in the middle, or on the bottom.	SMMA_LO_00524
		Identify the object on the left or the right.	SMMA_LO_00525
		Identify the picture on the left or right.	SMMA_LO_00526
		Identify the object inside or outside a convex figure.	SMMA_LO_00532
		Identify the object that is the top, middle or bottom one.	SMMA_LO_00540
		Identify the object that is the top, middle, or bottom one.	SMMA_LO_00543
		Determine whether points are outside, inside, or on a geometric figure.	SMMA_LO_00552
		Identify the object that is near or far from another object.	SMMA_LO_00574
		Identify objects inside or outside a convex figure.	SMMA_LO_00575
		Identify the object behind or in front of another object in a three-dimensional perspective.	SMMA_LO_00584
		Move an object to a specified location (upper left, upper right, lower left, or lower right corner).	SMMA_LO_00590
		Identify a pair of objects that are not the same size.	SMMA_LO_00692
		Identify the biggest or smallest object.	SMMA_LO_00695
		Identify the objects that are taller or shorter than a nonstandard unit.	SMMA_LO_00743
		Identify the smaller or bigger rectangle.	SMMA_LO_00747
		Identify which familiar object is heavier.	SMMA_LO_00781
		Identify the nth object in a sequence (first to fifth)	SMMA_LO_00941
Identify the ordinal word for the nth object in a sequence (first to fifth).	SMMA_LO_00968		
K.3.2.2	Order 2 or 3 objects using measurable attributes, such as length and weight.	Match objects of the same height (3 heights).	SMMA_LO_00687
		Match objects of the same length (3 lengths).	SMMA_LO_00688
		Match amounts of liquid in containers (3 amounts).	SMMA_LO_00689
		Given 3 objects, Identify the shortest or longest object.	SMMA_LO_00693
		Identify the tallest object.	SMMA_LO_00694
		Identify the container with the greatest or least capacity.	SMMA_LO_00696
		Identify the object that is a different height.	SMMA_LO_00712
		Order three objects by length.	SMMA_LO_02147
1.1.1.1	Use place value to describe whole numbers between 10 and 100 in terms of tens and ones. For example: Recognize the numbers 21 to 29 as 2 tens and a particular number of ones.	Find the number of a set of objects (grouped tens and ones; two-digit).	SMMA_LO_00976
		Show a number using base-ten blocks (two-digit).	SMMA_LO_00978
		Enter the number equal to a given number of ones and tens (0 to 9 tens, 1 to 9 ones).	SMMA_LO_00979

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1.1.1.1	Use place value to describe whole numbers between 10 and 100 in terms of tens and ones. For example: Recognize the numbers 21 to 29 as 2 tens and a particular number of ones.	Enter how many tens and ones for a number (two-digit).	SMMA_LO_00980
		Find two numbers when given place value clues (two-digit).	SMMA_LO_00990
		Identify a two-digit number, model, or expression that has a different value.	SMMA_LO_00991
		Identify a number with a given digit in the ones or tens place.	SMMA_LO_00995
		Find two numbers when given place value clues (two-digit).	SMMA_LO_01049
		Decompose numbers from 11 to 19 into ten ones and some further ones.	SMMA_LO_02094
		Compose numbers from 11 to 19 given ten ones and some further ones by using objects.	SMMA_LO_02095
		R: Enter the number equal to 1 to 9 tens.	SMMA_LO_00974
		R: Enter the number of tens for a given multiple of ten (10 to 90).	SMMA_LO_00975
1.1.1.2	Read, write and represent whole numbers up to 120. Representations may include numerals, addition and subtraction, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks.	Find a missing number on a number line (0 to 9).	SMMA_LO_00961
		Identify two numbers within a range (1 to 9), number line in feedback.	SMMA_LO_00963
		Identify a written number from a spoken number (two-digit).	SMMA_LO_00977
		Identify a number on a number line between two given numbers (1 to 9).	SMMA_LO_00993
		Find a missing number for a point on a number line (two-digit).	SMMA_LO_00996
		Enter the number for a word name (two-digit).	SMMA_LO_01001
		Model the numbers from 11 to 19 with place value blocks.	SMMA_LO_02018
		Model multiples of 10 (from 10 to 90) with place value blocks.	SMMA_LO_02019
1.1.1.3	Count, with and without objects, forward and backward from any given number up to 120.	Enter the missing date on a calendar.	SMMA_LO_00700
		Find a missing number in a sequence, counting by 1's (11 to 50).	SMMA_LO_00982
		Find a missing number in a sequence, counting by 1's (51 to 99).	SMMA_LO_00983
1.1.1.4	Find a number that is 10 more or 10 less than a given number. For example: Using a hundred grid, find the number that is 10 more than 27.	Find a missing number in a sequence, counting by 10's (10 to 100, visual support).	SMMA_LO_00971
		Find a missing number in a sequence, counting by 10's (10 to 100).	SMMA_LO_00981
		Mentally find 10 more or 10 less than a given two-digit number; model the solution with place value blocks.	SMMA_LO_02020
1.1.1.5	Compare and order whole numbers up to 120.	Compare numbers using < or > symbols (1 to 19).	SMMA_LO_00325
		Compare sums (sums 1 to 9).	SMMA_LO_00326
		Compare numbers using < or > symbols (20 to 99).	SMMA_LO_00328
		Compare differences (minuends 1 to 9).	SMMA_LO_00337

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1.1.1.5	Compare and order whole numbers up to 120.	Identify four numbers ordered from least to greatest (two-digit).	SMMA_LO_00985
		Identify two numbers that make an inequality true (two-digit).	SMMA_LO_00997
		Find two numbers within a range (two-digit).	SMMA_LO_00998
		Identify the greatest or least number (two-digit).	SMMA_LO_00999
		Identify whole numbers on a number line that satisfy the inequality (0 to 10).	SMMA_LO_01023
		Identify the value that is greater than one number and less than another in context.	SMMA_LO_01554
1.1.1.6	Use words to describe the relative size of numbers. For example: Use the words equal to, not equal to, more than, less than, fewer than, is about, and is nearly to describe numbers.	Identify a group with more objects than a given group (1 to 5 objects).	SMMA_LO_00923
		Identify a group with fewer objects than a given group (1 to 5 objects).	SMMA_LO_00924
		Create a set with the same, more, or fewer number of objects than a given group (1 to 9 objects).	SMMA_LO_00953
		Identify the group with the greatest number of shapes of a given type (1 to 6).	SMMA_LO_00959
		Find a number that is one fewer or one greater than a given number (1 to 9).	SMMA_LO_00962
1.1.1.7	Use counting and comparison skills to create and analyze bar graphs and tally charts. For example: Make a bar graph of students' birthday months and count to compare the number in each month.	Match each set of tally marks to a total (1 to 9).	SMMA_LO_00952
		Create a vertical bar graph from a table and interpret data in the graph.	SMMA_LO_01130
		Interpret the shorter or taller bar of a vertical bar graph as having fewer or more items.	SMMA_LO_01131
		Create a table from a vertical bar graph.	SMMA_LO_01132
		Identify the two-column vertical bar graph that shows one category has fewer than, the same number as, or more than the other category.	SMMA_LO_01133
		Identify a vertical bar graph that represents data in a table.	SMMA_LO_01134
		Identify the vertical bar graph that shows a strictly increasing or decreasing trend.	SMMA_LO_01135
		Identify the table that represents the data in a vertical bar graph.	SMMA_LO_01136
		Label the categories of a vertical bar graph based on data from a table.	SMMA_LO_01138
		Collect, tally, and graph the results generated by a spinner.	SMMA_LO_01144
		Construct a vertical bar graph based on data from a horizontal bar graph.	SMMA_LO_01146
		Identify the number of categories in a vertical bar graph that are less than, equal to, and greater than a given value.	SMMA_LO_01148
		Construct a horizontal bar graph based on data from a vertical bar graph.	SMMA_LO_01150
Analyze a bar graph to find the number of bars that fall within a given range.	SMMA_LO_01154		

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1.1.2.1	Use words, pictures, objects, length-based models (connecting cubes), numerals and number lines to model and solve addition and subtraction problems in part-part-total, adding to, taking away from and comparing situations.	Add two addends (sums 6 to 10).	SMMA_LO_00012
		Add using basic math facts displayed horizontally (sums 6 to 10).	SMMA_LO_00013
		Add using basic math facts (addends 0 to 5, sums 1 to 5).	SMMA_LO_00014
		Add 1 to a number (sums 1 to 10).	SMMA_LO_00015
		Add two addends (one-digit addends, sums 6 to 10).	SMMA_LO_00016
		Add doubles (sums 2 to 18).	SMMA_LO_00017
		Add two consecutive addends (one-digit addends, sums 1 to 17).	SMMA_LO_00020
		Add two consecutive addends displayed horizontally (one-digit addends, sums 1 to 17).	SMMA_LO_00021
		Add using basic math facts (sums 11 to 18).	SMMA_LO_00022
		Add using basic math facts displayed horizontally (sums 10 to 18).	SMMA_LO_00023
		Add using basic math facts (sums 1 to 18).	SMMA_LO_00024
		Add two multiples of 10 (student choice, sums 20 to 90).	SMMA_LO_00025
		Add three addends (sums 2 to 5).	SMMA_LO_00026
		Add three addends (audio presentation, sums 3 to 5).	SMMA_LO_00027
		Add three addends (sums 6 to 10).	SMMA_LO_00028
		Add three addends displayed horizontally (sums 6 to 10).	SMMA_LO_00029
		Add four addends (one-digit addends, sums 3 to 10).	SMMA_LO_00030
		Add three addends (one-digit addends, sums 11 to 19).	SMMA_LO_00031
		Add three addends (one-digit addends, sums 10 to 19).	SMMA_LO_00032
		Add two addends (one- and two-digit addends, sums 11 to 99, no regrouping).	SMMA_LO_00033
		Add 10 to a number (sums 11 to 19).	SMMA_LO_00038
		Add 1- and 2-digit addends (sums 11-19, audio presentation).	SMMA_LO_00039
		Add a multiple of 10 and a one-digit number displayed horizontally (sums 11 to 99).	SMMA_LO_00040
		Add two addends (sums 10 to 18).	SMMA_LO_00041
		Add using basic math facts displayed horizontally (sums 10 to 18).	SMMA_LO_00042
		Add two multiples of 10 displayed horizontally (sums 20 to 90).	SMMA_LO_00044
		Add 9 to a number (sums 10 to 18).	SMMA_LO_00045
Add two addends displayed horizontally (one- and two-digit addends, sums 11 to 99).	SMMA_LO_00049		
Find a number that is one fewer or one greater than a given number (1 to 9).	SMMA_LO_00962		

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1.1.2.1	Use words, pictures, objects, length-based models (connecting cubes), numerals and number lines to model and solve addition and subtraction problems in part-part-total, adding to, taking away from and comparing situations.	Find a number that is one less or one more than a given number (two-digit).	SMMA_LO_00984
		Subtract using basic math facts (minuends 6 to 9).	SMMA_LO_01418
		Subtract using basic math facts (minuends 1 to 9).	SMMA_LO_01419
		Subtract using basic math facts (differences are 0).	SMMA_LO_01420
		Subtract 1 from a number (minuends 1 to 9).	SMMA_LO_01421
		Subtract a number from 10 (subtrahends 1 to 9).	SMMA_LO_01424
		Subtract a number from its double (differences 1 to 9).	SMMA_LO_01425
		Subtract two multiples of 10 (student choice, minuends 20 to 90, subtrahends 10 to 80).	SMMA_LO_01426
		Subtract using basic math facts displayed horizontally (minuends 10 to 14, subtrahends 1 to 9).	SMMA_LO_01429
		Subtract using basic math facts (minuends 15 to 18, subtrahends 6 to 9).	SMMA_LO_01434
		Subtract using basic math facts (minuends 11 to 19, subtrahends 1 to 8).	SMMA_LO_01435
		Subtract using basic math facts (minuends 11 to 18, subtrahends 1 to 9).	SMMA_LO_01436
		Subtract multiples of 10 (student choice, minuends 20 to 90, subtrahends 10 to 80).	SMMA_LO_01437
		Subtract multiples of 10 (minuends 20 to 90, subtrahends 10 to 80, horizontal presentation).	SMMA_LO_01438
		Subtract 10 from a two-digit number (student choice, minuends 11 to 19).	SMMA_LO_01441
		Subtract 10 from a number (minuends 11 to 19, horizontal presentation).	SMMA_LO_01442
		Subtract a one-digit number from a two-digit number displayed horizontally (minuends 11 to 19, subtrahends 1 to 9).	SMMA_LO_01443
		Subtract using basic math facts (minuends 15 to 18, subtrahends 6 to 9).	SMMA_LO_01444
		Subtract (minuends 11 to 19, subtrahends 1 to 9, no regrouping).	SMMA_LO_01445
		Act out the solution to a subtraction problem in context (minuends 1 to 6).	SMMA_LO_01536
		R: Solve a problem in context by adding or subtracting 1.	SMMA_LO_01535
		R: Identify the picture that represents a subtraction problem in context (minuends 2 to 10).	SMMA_LO_01542
		Given a number (1-9) of objects, determine how many more objects are needed to make a ten.	SMMA_LO_02017
Model the number that makes 10 when added to a given number from 1 to 9; then identify the number.	SMMA_LO_02097		

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MN Standard	MN Standard Text	Item Description	Item ID
1.1.2.3	Recognize the relationship between counting and addition and subtraction. Skip count by 2s, 5s, and 10s.	Find a missing number in a sequence, counting by 2's (0 to 10).	SMMA_LO_00966
		Find a missing number in a sequence, counting by 5's (5 to 50).	SMMA_LO_01003
		Find the missing number in a sequence, counting by 5's or 10's.	SMMA_LO_01231
1.2.1.1	Create simple patterns using objects, pictures, numbers and rules. Identify possible rules to complete or extend patterns. Patterns may be repeating, growing or shrinking. Calculators can be used to create and explore patterns. For example: Describe rules that can be used to extend the pattern 2, 4, 6, 8, ", ", " and complete the pattern 33, 43, ", 63, ", 83 or 20, ", ", 17.	Extend a 1-2-1-2 pattern of pictures.	SMMA_LO_00519
		Extend a 1-2-1-2 pattern of geometric figures.	SMMA_LO_00520
		Extend a 1-1-2-2 pattern of pictures.	SMMA_LO_00521
		Extend a 1-1-2-2 pattern of geometric figures.	SMMA_LO_00522
		Match patterns of geometric figures.	SMMA_LO_00539
		Extend a 1-2-2 pattern of pictures.	SMMA_LO_00556
		Extend a 1-1-2 or 1-2-2 pattern of congruent shapes.	SMMA_LO_00558
		Extend a 1-2-3 pattern of similar figures.	SMMA_LO_00560
		Extend a 1-2-3 pattern of geometric figures.	SMMA_LO_00585
		Identify the missing geometric figure in a 1-2-1-2 pattern.	SMMA_LO_00591
		Identify the missing picture in a 1-2-3-1-2-3 pattern.	SMMA_LO_00607
		Find the missing two-digit number in a sequence of odd or even numbers.	SMMA_LO_01002
1.2.2.1	Represent real-world situations involving addition and subtraction basic facts, using objects and number sentences. For example: One way to represent the number of toys that a child has left after giving away 4 of 6 toys is to begin with a stack of 6 connecting cubes and then break off 4 cubes.	Identify a shape with positive and negative tests.	SMMA_LO_00578
		Use guess and check to solve an addition and subtraction problem (basic facts).	SMMA_LO_01240
		Act out the problem to find the sum (basic facts).	SMMA_LO_01241
		Identify a picture that represents a subtraction problem (one or two-digit).	SMMA_LO_01244
		Act out a problem to find the sum of three numbers (one-digit addends).	SMMA_LO_01249
		Identify the picture that can be used to solve an addition or subtraction problem.	SMMA_LO_01255
		Act out the solution to an addition problem in context (three addends, sums 1 to 9).	SMMA_LO_01537
		Act out the solution to multi-step problem in context (addends, minuends 1 to 4).	SMMA_LO_01538
		Solve an addition problem in context (different objects, sums 2 to 5).	SMMA_LO_01544
		Solve a subtraction problem in context (minuends 2 to 5).	SMMA_LO_01545
		Solve a problem in context by finding a missing addend (sums 2 to 5).	SMMA_LO_01546
		Solve an addition problem with three addends in context (sums 3 to 10).	SMMA_LO_01549

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MN Standard	MN Standard Text	Item Description	Item ID
1.2.2.1	Represent real-world situations involving addition and subtraction basic facts, using objects and number sentences. For example: One way to represent the number of toys that a child has left after giving away 4 of 6 toys is to begin with a stack of 6 connecting cubes and then break off 4 cubes.	Solve a subtraction problem in context by finding how many more (minuends 2 to 5).	SMMA_LO_01550
		Make a picture to solve a two-step problem in context (addition and subtraction).	SMMA_LO_01551
		Solve an addition problem in context (three addends, sums 9 to 18).	SMMA_LO_01576
		Solve an addition problem with three addends in context (sums 3 to 10).	SMMA_LO_01557
1.2.2.2	Determine if equations involving addition and subtraction are true. For example: Determine if the following number sentences are true or false $7 = 7$ $7 = 8 - 1$ $5 + 2 = 2 + 5$ $4 + 1 = 5 + 2.$	Determine if equations involving addition and subtraction are true or false.	SMMA_LO_02024
1.2.2.3	Use number sense and models of addition and subtraction, such as objects and number lines, to identify the missing number in an equation such as: $2 + 4 = \square$ $3 + \square = 7$ $5 = \square - 3.$	Find the missing addend in a number sentence.	SMMA_LO_00037
		Find the missing addend in a number sentence (sums 10 to 18).	SMMA_LO_00048
		Find the missing addend in a number sentence (three addends, sums 1 to 9).	SMMA_LO_00052
		Find the missing addend in a number sentence (three addends, sums 10 to 19).	SMMA_LO_00066
		Complete fact families with four facts (sums 3 to 10).	SMMA_LO_00322
		Identify a missing number in an addition and subtraction fact family.	SMMA_LO_01035
		Use a picture to solve a missing addend problem (sums 2 to 6).	SMMA_LO_01232
		Find the missing subtrahend in a subtraction number sentence (minuends 0 to 9).	SMMA_LO_01432
		Find the missing minuend in a subtraction number sentence (minuends 0 to 9).	SMMA_LO_01440
		Find the missing subtrahend in a subtraction number sentence (minuends 10 to 14).	SMMA_LO_01446
		Find the missing subtrahend in a subtraction number sentence (minuends 15 to 18).	SMMA_LO_01449
		Find the missing minuend in a subtraction number sentence (minuends 10 to 14).	SMMA_LO_01451
		Find the missing minuend in a subtraction number sentence (minuends 15 to 18).	SMMA_LO_01455
		Find the missing subtrahend in a subtraction number sentence (minuends 11 to 19).	SMMA_LO_01464
Find the missing minuend in a subtraction number sentence (minuends 11 to 19).	SMMA_LO_01468		

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MN Standard	MN Standard Text	Item Description	Item ID
1.2.2.3	Use number sense and models of addition and subtraction, such as objects and number lines, to identify the missing number in an equation such as: $2 + 4 = \square$ $3 + \square = 7$ $5 = \square - 3$.	Solve a problem in context by finding a missing addend (three addends, sums to 20).	SMMA_LO_01574
		Create a fact family (addition and subtraction).	SMMA_LO_01857
		Identify the missing number (addend or sum) in an addition equation, for numbers 20 and less.	SMMA_LO_02010
		Identify the missing number (minuend, subtrahend, or difference) in a subtraction equation, for numbers 20 and less.	SMMA_LO_02014
		Apply the Commutative Property of Addition as a strategy to add two numbers; use fact families as a strategy to subtract two numbers.	SMMA_LO_02021
		Use the Associative Property of Addition to add two numbers by regrouping the numbers into a ten and some ones.	SMMA_LO_02022
		Solve a subtraction problem by finding the missing addend.	SMMA_LO_02023
		Subtract two numbers by regrouping the numbers into a ten and some ones.	SMMA_LO_02026
1.2.2.4	Use addition or subtraction basic facts to represent a given problem situation using a number sentence. For example: $5 + 3 = 8$ could be used to represent a situation in which 5 red balloons are combined with 3 blue balloons to make 8 total balloons.	Identify the operation from pictures and contexts (sums 6 to 9, minuends 6 to 9).	SMMA_LO_00321
		Write a number sentence for an addition problem (sums 2 to 5).	SMMA_LO_01229
		Write a number sentence for an addition problem (sums 2 to 10).	SMMA_LO_01230
		Choose the expression that can represent a problem with extra information; then solve (addition or subtraction).	SMMA_LO_01239
		Identify a number sentence that can be used to solve a problem with extra information (addition or subtraction, basic facts).	SMMA_LO_01242
		Identify the number sentence that solves a subtraction problem in context (minuends 11 to 18, subtrahends 1 to 9).	SMMA_LO_01439
		Identify and solve a number sentence for an addition problem in context (sums 2 to 9).	SMMA_LO_01553
		Identify and solve a number sentence for an addition problem in context (sums 2 to 9).	SMMA_LO_01555
		Identify the expression that represents a subtraction problem in context (minuends 2 to 5).	SMMA_LO_01559
		Identify and solve the number sentence for a subtraction problem in context (minuends 2 to 5).	SMMA_LO_01562
		Identify and solve a number sentence for a subtraction problem in context (minuends 2 to 5).	SMMA_LO_01568

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MN Standard	MN Standard Text	Item Description	Item ID
1.3.1.1	Describe characteristics of two- and three-dimensional objects, such as triangles, squares, rectangles, circles, rectangular prisms, cylinders, cones and spheres. For example: Triangles have three sides and cubes have eight vertices (corners).	Count the corners (vertices) of a polygon (3 to 7 corners).	SMMA_LO_00596
		R: Identify the figure that has a different number of sides from a given figure.	SMMA_LO_00553
		R: Classify geometric figures by a shape attribute.	SMMA_LO_00576
		R: Identify open and closed figures.	SMMA_LO_00580
		R: Count the number of sides in a polygon.	SMMA_LO_00586
		R: Identify figures with more or fewer than a given number of sides.	SMMA_LO_00587
		R: Identify corners (vertices) of polygons.	SMMA_LO_00589
		R: Sort two-dimensional and three-dimensional shapes.	SMMA_LO_01677
1.3.1.2	Compose (combine) and decompose (take apart) two- and three-dimensional figures such as triangles, squares, rectangles, circles, rectangular prisms and cylinders. For example: Decompose a regular hexagon into 6 equilateral triangles; build prisms by stacking layers of cubes; compose an ice cream cone by combining a cone and half of a sphere. Another example: Use a drawing program to find shapes that can be made with a rectangle and a triangle.	Match a plane figure to a geometric design that uses the figure.	SMMA_LO_00554
		Identify puzzle pieces needed to make a given shape, and then complete the puzzle (4 to 6 pieces).	SMMA_LO_00564
		R: Match halves of figures (left and right).	SMMA_LO_00561
		R: Match halves of figures (top and bottom).	SMMA_LO_00563
		R: Match compound figures that have the same shape (different sizes).	SMMA_LO_00594
1.3.2.1	Measure the length of an object in terms of multiple copies of another object. For example: Measure a table by placing paper clips end-to-end and counting.	Identify the group of objects that is 1 to 5 nonstandard units long or tall.	SMMA_LO_00701
		Count to find how long or tall (2 to 9 nonstandard units).	SMMA_LO_00705
		Find the height (2 to 9 nonstandard units).	SMMA_LO_00710
		Count to find the height and width (2 to 5 nonstandard units).	SMMA_LO_00713
		Find the total length of two objects (nonstandard units, sums 2 to 5).	SMMA_LO_00720
		Estimate the height and width (2 to 5 nonstandard units).	SMMA_LO_00721
		Identify an object given the height and width in nonstandard units.	SMMA_LO_00725
		Find the distance between two objects (2 to 8 nonstandard units).	SMMA_LO_00732
		Measure the length of an object (2 to 7 nonstandard units).	SMMA_LO_00777
1.3.2.2	Tell time to the hour and half-hour.	Tell time to the hour using an analog clock.	SMMA_LO_00714
		Tell time to the hour using digital and analog clocks.	SMMA_LO_00716
		Tell time to the half-hour using an analog clock.	SMMA_LO_00724
		R: Identify the hour or minute hand of a clock.	SMMA_LO_00697

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MN Standard	MN Standard Text	Item Description	Item ID
1.3.2.3	Identify pennies, nickels and dimes; find the value of a group of these coins, up to one dollar.	Determine the number of cents in 1 to 100 pennies, 1 to 20 nickels, or 1 to 10 dimes.	SMMA_LO_00143
		Identify nickels or dimes.	SMMA_LO_00698
		Enter the amount of money shown (1 to 5 cents in pennies).	SMMA_LO_00699
		Identify the coin worth 1, 5, 10, or 25 cents.	SMMA_LO_00702
		Enter the amount of money shown (6 to 9 cents in pennies).	SMMA_LO_00704
		Enter the amount of money shown (11 to 50 cents in pennies and dimes).	SMMA_LO_00715
		Enter the amount of money shown (10 to 19 cents in pennies, nickels, and dimes).	SMMA_LO_00722
		Identify the coin equivalent to 5, 10, or 25 pennies.	SMMA_LO_00727
2.1.1.1	Read, write and represent whole numbers up to 1000. Representations may include numerals, addition, subtraction, multiplication, words, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks.	Identify the word name for a three-digit number.	SMMA_LO_01009
		Find a number that is one fewer, one greater, just before, or just after a three-digit number.	SMMA_LO_01016
		Identify the number, model, word name, or expanded notation that has a different value (three-digit).	SMMA_LO_01018
		Enter a number on a partially numbered number line (100 to 999).	SMMA_LO_01037
		Enter the number for a word name (100 to 999).	SMMA_LO_01042
		Given a number (1-9) of groups of 10 objects, determine how many more groups of 10 objects are needed to make a hundred.	SMMA_LO_02011
2.1.1.2	Use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds. For example: Writing 853 is a shorter way of writing 8 hundreds + 5 tens + 3 ones.	Find a number equal to 1 to 9 hundreds.	SMMA_LO_01007
		Find the number of hundreds equivalent to a multiple of 100 (100 to 900).	SMMA_LO_01008
		Identify the number represented by a set of objects (pictorial models of hundreds, tens, and ones; three-digit).	SMMA_LO_01010
		Use base-ten blocks to show a number (three-digit).	SMMA_LO_01012
		Enter a three-digit number in a place-value chart (base-ten block models, three-digit).	SMMA_LO_01013
		Identify a number with a given digit in the ones, tens, or hundreds place.	SMMA_LO_01014
		Find a number equal to 1 to 9 hundreds, 0 to 9 tens, and 0 to 9 ones.	SMMA_LO_01015
		Enter a three-digit number in a place-value chart (base-ten block models, three-digit).	SMMA_LO_01025
		Find a number equal to 1 to 9 hundreds, 0 to 9 tens, and 0 to 9 ones.	SMMA_LO_01047

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2.1.1.3	Find 10 more or 10 less than a given three-digit number. Find 100 more or 100 less than a given three-digit number. For example: Find the number that is 10 less than 382 and the number that is 100 more than 382.	Add two addends (100 and a three-digit number, sums 200 to 900).	SMMA_LO_00057
		Subtract 100 from a three-digit number presented in a sentence.	SMMA_LO_01459
2.1.1.4	Round numbers up to the nearest 10 and 100 and round numbers down to the nearest 10 and 100. For example: If there are 17 students in the class and granola bars come 10 to a box, you need to buy 20 bars (2 boxes) in order to have enough bars for everyone.	Round a two-digit number to the nearest ten.	SMMA_LO_01028
		Round two-digit numbers to the nearest ten.	SMMA_LO_01647
		Round a two-digit number to the nearest ten (hundreds chart).	SMMA_LO_01648
		Round a two-digit number to the nearest ten.	SMMA_LO_01649
2.1.1.5	Compare and order whole numbers up to 1000.	Identify the greatest or least number (three-digit).	SMMA_LO_01019
		Find a number between two given numbers (1 to 999).	SMMA_LO_01020
		Identify four numbers that are in consecutive order (three-digit).	SMMA_LO_01021
		Identify the greatest or least number (three-digit).	SMMA_LO_01026
		Identify a number that is between two numbers, or before, after, or closer to a number (101 to 999).	SMMA_LO_01027
		Identify four numbers that are in consecutive order (three-digit).	SMMA_LO_01029
		Identify a set of numbers between two numbers, or less than or greater than a given number (101 to 999).	SMMA_LO_01068
		Identify all the towns with temperatures below 32 degrees Fahrenheit on a weather map.	SMMA_LO_01311
2.1.2.1	Use strategies to generate addition and subtraction facts including making tens, fact families, doubles plus or minus one, counting on, counting back, and the commutative and associative properties. Use the relationship between addition and subtraction to generate basic facts. For example: Use the associative property to make tens when adding $5 + 8 = (3 + 2) + 8 = 3 + (2 + 8) = 3 + 10 = 13$.	Find the missing addend in a number sentence (a multiple of 10 and a one-digit addend, sums 11 to 99, no regrouping).	SMMA_LO_00050
		Add two addends (student choice, a one-digit and a two-digit addend, sums 20 to 98, regrouping).	SMMA_LO_00054
		Find the sum of two numbers displayed horizontally (a one-digit and a two-digit addend, sums 20 to 98, regrouping).	SMMA_LO_00055
		Find the missing addend in a number sentence (a one-digit and a two-digit addend, sums 10 to 99, no regrouping).	SMMA_LO_00070
		Find the missing addend in a number sentence (two addends, sums 20 to 98, regrouping).	SMMA_LO_00084
		Find the missing addend in a number sentence (two addends, sums 100 to 199, regrouping).	SMMA_LO_00086

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MN Standard	MN Standard Text	Item Description	Item ID
2.1.2.1	Use strategies to generate addition and subtraction facts including making tens, fact families, doubles plus or minus one, counting on, counting back, and the commutative and associative properties. Use the relationship between addition and subtraction to generate basic facts. For example: Use the associative property to make tens when adding $5 + 8 = (3 + 2) + 8 = 3 + (2 + 8) = 3 + 10 = 13$.	Identify a missing number in related addition and subtraction number sentences (two-digit sums, two-digit differences).	SMMA_LO_01060
		Subtract 1 from a number (two-digit minuends, no regrouping).	SMMA_LO_01427
		Subtract two numbers displayed horizontally (counting up strategy, minuends 25 to 98, subtrahends 6 to 9, regrouping).	SMMA_LO_01472
		Find the missing minuend in a number sentence (minuends 21 to 99).	SMMA_LO_01478
		Find the missing subtrahend in a number sentence (minuends 10 to 99).	SMMA_LO_01480
		Find the missing minuend in a subtraction number sentence (minuends 10 to 99, no regrouping).	SMMA_LO_01486
		Find the difference of two whole numbers (two-digit numbers, regrouping).	SMMA_LO_01488
		Find the missing minuend in a subtraction number sentence (minuends 20 to 98, subtrahends 11 to 89).	SMMA_LO_01491
		Explain how to solve an addition problem, either by using place value blocks or by rewriting the problem.	SMMA_LO_02012
		Explain how to solve a subtraction problem, either by using place value blocks or by rewriting the problem as an addition problem.	SMMA_LO_02013
		Apply the Associative Property of Addition to add three numbers.	SMMA_LO_02135
2.1.2.2	Demonstrate fluency with basic addition facts and related subtraction facts.	Add doubles (sums 4 to 18).	SMMA_LO_00019
		Add three addends displayed horizontally (one-digit addends, sums 20 to 27).	SMMA_LO_00062
		Add three addends (student choice, one-digit addends, sums 20 to 27).	SMMA_LO_00069
		Subtract (student choice, minuends 10 to 15, subtrahends 0 to 5, no regrouping).	SMMA_LO_01430
		Subtract using basic math facts (student choice, minuends 16 to 19, subtrahends 1 to 9).	SMMA_LO_01433
		Solve an addition problem in context (two-digit addends, sums less than 100, no regrouping).	SMMA_LO_01656
2.1.2.3	Estimate sums and differences up to 100. For example: Know that $23 + 48$ is about 70.	Estimate the number of objects to the nearest ten (21 to 49 objects).	SMMA_LO_01548

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2.1.2.4	Use mental strategies and algorithms based on knowledge of place value and equality to add and subtract two-digit numbers. Strategies may include decomposition, expanded notation, and partial sums and differences. For example: Using decomposition, $78 + 42$, can be thought of as: $78 + 2 + 20 + 20 = 80 + 20 + 20 = 100 + 20 = 120$ and using expanded notation, $34 - 21$ can be thought of as: $30 + 4 - 20 - 1 = 30 - 20 + 4 - 1 = 10 + 3 = 13$.	Add three addends (two-digit addends, sums 33 to 99, no regrouping).	SMMA_LO_00056
		Add three addends (student choice, two-digit addends, sums 100 to 199, regrouping from tens to hundreds place).	SMMA_LO_00060
		Add two addends displayed horizontally (multiples of 10, sums 100 to 180, regrouping).	SMMA_LO_00068
		Add two addends (student choice, two-digit addends, sums 100 to 198, regrouping).	SMMA_LO_00075
		Add three addends (student choice, one-digit and two-digit addends, sums 21 to 99, no regrouping).	SMMA_LO_00079
		Find the missing addend in a number sentence (three addends, sums 20 to 27, regrouping).	SMMA_LO_00082
		Add three addends (student choice, one- and two-digit addends, sums 100 to 198, no regrouping).	SMMA_LO_00087
		Add three addends (student choice, one- and two-digit addends, sums 30 to 98, regrouping).	SMMA_LO_00090
		Add three addends (student choice, one- and two-digit addends, sums 100 to 207, regrouping).	SMMA_LO_00092
		Add three addends (student choice, two-digit addends, sums 40 to 297, regrouping).	SMMA_LO_00095
		Find the sum or difference when a two-digit number is added to or subtracted from a number (base-ten block models).	SMMA_LO_00989
		Find the difference between two numbers (two-digit, presented as a sentence).	SMMA_LO_01000
		Subtract (minuends 21 to 99, subtrahends 1 to 9, no regrouping).	SMMA_LO_01450
		Subtract two numbers displayed horizontally (counting up strategy, minuends 21 to 98, subtrahends 2 to 9, regrouping).	SMMA_LO_01462
		Subtract two-digit numbers with regrouping (vertical presentation).	SMMA_LO_01463
		Subtract two-digit numbers with regrouping (vertical presentation).	SMMA_LO_01473
		Identify the missing variable of addition or subtraction equations (sums 10 to 50, minuends 10 to 50).	SMMA_LO_01687
2.1.2.5	Solve real-world and mathematical addition and subtraction problems involving whole numbers with up to 2 digits.	Add three multiples of 10 (student choice, sums 30 to 90).	SMMA_LO_00043
		Add two multiples of 10 (student choice, sums 100 to 180).	SMMA_LO_00047
		Add three multiples of 10 (sums 100 to 190, regrouping).	SMMA_LO_00051

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2.1.2.5	Solve real-world and mathematical addition and subtraction problems involving whole numbers with up to 2 digits.	Add two addends (student choice, two-digit addends, sums 100 to 189, regrouping 10's to 100's).	SMMA_LO_00053
		Add two addends displayed horizontally (two-digit addends, sums 21 to 99).	SMMA_LO_00064
		Add two addends (student choice, two-digit addends, sums 30 to 98, regrouping).	SMMA_LO_00067
		Choose an operation to solve a problem with extra information; then solve (addition or subtraction, basic facts).	SMMA_LO_01247
		Work backwards to solve a problem with a missing number.	SMMA_LO_01266
		Calculate the difference between the life spans of two animals (differences 2 to 59).	SMMA_LO_01310
		Predict the effect of changing temperatures on the weather.	SMMA_LO_01312
		Subtract (student choice, minuends 21 to 95, subtrahends 1 to 9, no regrouping).	SMMA_LO_01428
		Subtract a multiple of 10 from a 2-digit number (minuends 11-99, vertical presentation).	SMMA_LO_01452
		Subtract (student choice, minuends 21 to 99, no regrouping).	SMMA_LO_01454
		Find the missing subtrahend in a subtraction number sentence (minuends 21 to 99).	SMMA_LO_01470
		Make a picture to solve a two-step problem in context (addition and subtraction).	SMMA_LO_01552
		Solve an addition problem in context (two-digit addends, sums less than 100, no regrouping).	SMMA_LO_01556
		Solve a problem with extra information (addition).	SMMA_LO_01558
		Solve a subtraction problem in context (two-digit minuends, one-digit subtrahends, no regrouping).	SMMA_LO_01560
		Solve a subtraction problem in context to find how much is left (two-digit numbers, no regrouping).	SMMA_LO_01561
		Solve a subtraction problem to find a person's age (minuends 1 to 99, subtrahends 1 to 9, no regrouping).	SMMA_LO_01563
		Solve an addition problem in context (extra information, sums to 50, no regrouping).	SMMA_LO_01567
		Solve a subtraction problem involving coins (two-digit numbers, no regrouping).	SMMA_LO_01579
		Solve a subtraction problem in context (extra information, minuends 2 to 99, no regrouping).	SMMA_LO_01581
Solve an addition problem in context (four addends, sums 0 to 25).	SMMA_LO_01587		

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2.1.2.5	Solve real-world and mathematical addition and subtraction problems involving whole numbers with up to 2 digits.	Solve an addition problem using data in a table (sums 100 to 198).	SMMA_LO_01595
		Read and interpret a table.	SMMA_LO_01695
		R: Identify a number sentence that can be used to solve a problem with extra information (addition or subtraction, basic facts).	SMMA_LO_01250
2.1.2.6	Use addition and subtraction to create and obtain information from tables, bar graphs and tally charts.	Read and interpret a horizontal or vertical pictograph (four to six items).	SMMA_LO_00138
		Read and interpret data about tree growth from a bar graph.	SMMA_LO_01302
		Given a bar graph of tree growth, calculate the height a tree grew from one year to another.	SMMA_LO_01303
2.2.1.1	Identify, create and describe simple number patterns involving repeated addition or subtraction, skip counting and arrays of objects such as counters or tiles. Use patterns to solve problems in various contexts. For example: Skip count by 5s beginning at 3 to create the pattern 3, 8, 13, 18, Another example: Collecting 7 empty milk cartons each day for 5 days will generate the pattern 7, 14, 21, 28, 35, resulting in a total of 35 milk cartons.	Find a missing number in a sequence, counting by 10's (two-digit, non multiples of 10).	SMMA_LO_00992
		Find a missing number in a sequence, counting up or down by 5's (two-digit).	SMMA_LO_01004
		Count by 2's, 4's, 5's, or 10's (2 to 20, 4 to 40, 5 to 50, 80 to 200).	SMMA_LO_01030
		Find the missing numbers on a number line counting by 3's or 9's (3 to 81).	SMMA_LO_01034
		Count by 2's, 3's, or 10's (11 to 209, not multiples of 2, 3, 10).	SMMA_LO_01056
		Count by 5's, 6's, or 7's (through 70).	SMMA_LO_01058
		Count by 8's or 9's (up to 90).	SMMA_LO_01061
		Look for a pattern to solve a problem.	SMMA_LO_01276
2.2.2.1	Understand how to interpret number sentences involving addition, subtraction and unknowns represented by letters. Use objects and number lines and create real-world situations to represent number sentences. For example: One way to represent $n + 16 = 19$ is by comparing a stack of 16 connecting cubes to a stack of 19 connecting cubes; $24 = a + b$ can be represented by a situation involving a birthday party attended by a total of 24 boys and girls.	Solve for c in $a + b = c$ (sums 0 to 9).	SMMA_LO_00323
		Solve for c in $a - b = c$ (differences 1 to 9).	SMMA_LO_00324
		Solve for c in $a + b = c$ (sums 10 to 18).	SMMA_LO_00327
		Solve for c in $a - b = c$ (differences 1 to 9).	SMMA_LO_00329
		Solve for a or b in $a + b = c$ (sums 0 to 9).	SMMA_LO_00330
		Solve for a or b in $a - b = c$ (differences 0 to 9).	SMMA_LO_00331
		Solve for a or b in $a + b = c$ (sums 10 to 18).	SMMA_LO_00332
		Solve for a or b in $a - b = c$ (differences 0 to 18).	SMMA_LO_00333
		Solve for a or b in $a + b = c$ (sums 10 to 108).	SMMA_LO_00336
		Solve for c in $a - b = c$ (minuends 20 to 99, subtrahends 1 to 9, no regrouping).	SMMA_LO_00338
		Solve for c in $a - b = c$ (minuends 20 to 99, two-digit subtrahends, no regrouping).	SMMA_LO_00340
		Solve for a or b in $a + b = c$ (sums 12 to 98).	SMMA_LO_00341
		Solve for c in $a - b = c$ (minuends 20 to 99, regrouping).	SMMA_LO_00342

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MN Standard	MN Standard Text	Item Description	Item ID
2.2.2.1	<p>Understand how to interpret number sentences involving addition, subtraction and unknowns represented by letters. Use objects and number lines and create real-world situations to represent number sentences.</p> <p>For example: One way to represent $n + 16 = 19$ is by comparing a stack of 16 connecting cubes to a stack of 19 connecting cubes; $24 = a + b$ can be represented by a situation involving a birthday party attended by a total of 24 boys and girls.</p>	Solve for a or b in $a - b = c$ (minuends 20 to 99, no regrouping).	SMMA_LO_00343
		Solve for a or b in $a - b = c$ (minuends 21 to 99, subtrahends 1 to 9, no regrouping).	SMMA_LO_00347
		Solve a one-step equation (addition, sums to 100).	SMMA_LO_01686
		Solve a one-step equation (subtraction).	SMMA_LO_01688
2.2.2.2	<p>Use number sentences involving addition, subtraction, and unknowns to represent given problem situations. Use number sense and properties of addition and subtraction to find values for the unknowns that make the number sentences true.</p> <p>For example: How many more players are needed if a soccer team requires 11 players and so far only 6 players have arrived? This situation can be represented by the number sentence $11 - 6 = p$ or by the number sentence $6 + p = 11$.</p>	Solve for c in $a + b = c$ (sums 0 to 9).	SMMA_LO_00323
		Solve for c in $a - b = c$ (differences 1 to 9).	SMMA_LO_00324
		Solve for c in $a + b = c$ (sums 10 to 18).	SMMA_LO_00327
		Solve for c in $a - b = c$ (differences 1 to 9).	SMMA_LO_00329
		Solve for a or b in $a + b = c$ (sums 0 to 9).	SMMA_LO_00330
		Solve for a or b in $a - b = c$ (differences 0 to 9).	SMMA_LO_00331
		Solve for a or b in $a + b = c$ (sums 10 to 18).	SMMA_LO_00332
		Solve for a or b in $a - b = c$ (differences 0 to 18).	SMMA_LO_00333
		Solve for a, b, or c in $a + b + c = d$ (sums 10 to 19).	SMMA_LO_00335
		Solve for a or b in $a + b = c$ (sums 10 to 108).	SMMA_LO_00336
		Solve for c in $a - b = c$ (minuends 20 to 99, subtrahends 1 to 9, no regrouping).	SMMA_LO_00338
		Solve for d in $a + b + c = d$ (one-digit addends, sums 20 to 27).	SMMA_LO_00339
		Solve for c in $a - b = c$ (minuends 20 to 99, two-digit subtrahends, no regrouping).	SMMA_LO_00340
		Solve for a or b in $a + b = c$ (sums 12 to 98).	SMMA_LO_00341
		Solve for c in $a - b = c$ (minuends 20 to 99, regrouping).	SMMA_LO_00342
		Solve for a or b in $a - b = c$ (minuends 20 to 99, no regrouping).	SMMA_LO_00343
		Solve for a or b in $a - b = c$ (minuends 21 to 99, subtrahends 1 to 9, no regrouping).	SMMA_LO_00347
		Solve a one-step equation (addition, sums to 100).	SMMA_LO_01686
		Solve a one-step equation (subtraction).	SMMA_LO_01688
		Solve a one-step equation in context (addition, two-digit whole numbers).	SMMA_LO_01743
Solve a one-step equation in context (subtraction, two-digit whole numbers).	SMMA_LO_01744		

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MN Standard	MN Standard Text	Item Description	Item ID
2.3.1.1	Describe, compare, and classify two- and three-dimensional figures according to number and shape of faces, and the number of sides, edges and vertices (corners).	R: Match complex congruent figures in different orientations.	SMMA_LO_00581
2.3.1.2	Identify and name basic two- and three-dimensional shapes, such as squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, rectangular prisms, cones, cylinders and spheres. For example: Use a drawing program to show several ways that a rectangle can be decomposed into exactly three triangles.	Identify polygons and circles (pentagons, hexagons, octagons, parallelograms).	SMMA_LO_00627
2.3.2.1	Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object. For example: It will take more paper clips than whiteboard markers to measure the length of a table.	Measure the length of an object in cm and inches; relate the two measurements to the sizes of the units.	SMMA_LO_02003
		R: Identify the reasonable length of an object (inches, feet, and yards).	SMMA_LO_00780
2.3.2.2	Demonstrate an understanding of the relationship between length and the numbers on a ruler by using a ruler to measure lengths to the nearest centimeter or inch. For example: Draw a line segment that is 3 inches long.	Measure the length of an object to the nearest inch (2 to 6 inches).	SMMA_LO_00703
		Find the total length of two to four objects laid end to end (2 to 6 inches).	SMMA_LO_00748
		Measure the length of an object to the nearest centimeter (3 to 12 cm).	SMMA_LO_00750
		Measure two lengths and find the sum (metric, sums 2 to 9).	SMMA_LO_00753
		Measure the length of an object to the nearest inch (1 to 6 inches).	SMMA_LO_00755
		Measure two metric lengths, write an addition problem, and find the sum (sums 2 to 12 centimeters).	SMMA_LO_00756
		Identify a vertical distance (2 to 9 centimeters).	SMMA_LO_00758
		Measure the length of an object to the nearest centimeter (4 to 12 centimeters).	SMMA_LO_00762
		Measure the length of an object in centimeters or inches (whole numbers).	SMMA_LO_00785
		Measure the length of an object in cm and inches; relate the two measurements to the sizes of the units.	SMMA_LO_02003
		Measure two objects in inches; determine how much longer one object is than the other.	SMMA_LO_02015
R: Select the appropriate ruler to measure vertical or horizontal lengths.	SMMA_LO_00812		

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MN Standard	MN Standard Text	Item Description	Item ID
2.3.3.2	Identify pennies, nickels, dimes and quarters. Find the value of a group of coins and determine combinations of coins that equal a given amount. For example: 50 cents can be made up of 2 quarters, or 4 dimes and 2 nickels, or many other combinations.	Find equivalence of nickels and dimes (1 to 5 dimes).	SMMA_LO_00738
		Identify the given amount of money in coins (5 to 50 cents in nickels and dimes).	SMMA_LO_00740
		Show another way to represent an amount of money (10 to 24 cents in pennies, nickels, and dimes).	SMMA_LO_00745
		Enter the amount of money shown (10 to 99 cents).	SMMA_LO_00760
		Identify the set of coins that has greater value (16 to 75 cents in pennies, nickels, dimes, and quarters).	SMMA_LO_00765
		Show the given amount of money in coins (25 to 90 cents in pennies, nickels, dimes, and quarters).	SMMA_LO_00778
		Identify items that can be purchased for a nickel.	SMMA_LO_01541
		Solve an addition problem involving money (sums 3 to 9 cents).	SMMA_LO_01543
		Make a picture to solve a multiplication problem involving total cost (2 to 5 items, 5, 10, or 15 cents each).	SMMA_LO_01584
		3.1.1.1	Read, write and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives such as bundles of sticks and base 10 blocks.
Show a four-digit number with base-ten blocks.	SMMA_LO_01032		
3.1.1.2	Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones. For example: Writing 54,873 is a shorter way of writing the following sums: 5 ten thousands + 4 thousands + 8 hundreds + 7 tens + 3 ones 54 thousands + 8 hundreds + 7 tens + 3 ones.	Identify a number with a given digit in the ones, tens, hundreds, or thousands place.	SMMA_LO_01033
		Identify the expanded notation of a four-digit number.	SMMA_LO_01038
		Find a number equal to 1 to 9 thousands, 0 to 9 hundreds, 0 to 9 tens, and 0 to 9 ones.	SMMA_LO_01051
		Identify the value of a given digit in a four-digit number.	SMMA_LO_01062
		Enter the number for a word name (1000 to 9999).	SMMA_LO_01065
		Identify the digits in the period (hundreds, thousands, millions, and billions).	SMMA_LO_01083
3.1.1.4	Round numbers to the nearest 10,000, 1000, 100 and 10. Round up and round down to estimate sums and differences. For example: 8726 rounded to the nearest 1000 is 9000, rounded to the nearest 100 is 8700, and rounded to the nearest 10 is 8730. Another example: 473 – 291 is between 400 – 300 and 500 – 200, or between 100 and 300.	Round a three-digit number to the nearest hundred.	SMMA_LO_01036
		Identify the best estimate for a sum of two numbers (two-digit addends, round to the nearest 10).	SMMA_LO_01052
		Round a two-digit or three-digit number to the nearest ten.	SMMA_LO_01059
		Round a three- to five-digit number to the nearest hundred.	SMMA_LO_01081
		Round four- to five-digit numbers in context (to the nearest thousand).	SMMA_LO_01106

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MN Standard	MN Standard Text	Item Description	Item ID
3.1.1.4	Round numbers to the nearest 10,000, 1000, 100 and 10. Round up and round down to estimate sums and differences. For example: 8726 rounded to the nearest 1000 is 9000, rounded to the nearest 100 is 8700, and rounded to the nearest 10 is 8730. Another example: 473 – 291 is between 400 – 300 and 500 – 200, or between 100 and 300.	Determine the reasonableness of a sum or difference (two- and three-digit numbers).	SMMA_LO_01259
		Identify the expression that gives the best estimate for an addition or subtraction problem in context (two-digit numbers).	SMMA_LO_01566
		Estimate the difference of 2 four-digit numbers to the nearest thousand.	SMMA_LO_01614
		Estimate the sum by rounding to the nearest 10 (two-digit addends).	SMMA_LO_01615
		Identify the best estimate for a sum using data in a table (three- and four-digit addends).	SMMA_LO_01620
		Estimate the sum by rounding to the nearest hundred (three-digit addends).	SMMA_LO_01621
		Round a three-digit number to the nearest hundred.	SMMA_LO_01650
		Round a three-digit number to the nearest hundred.	SMMA_LO_01651
		Round a three-digit number to the nearest hundred.	SMMA_LO_01652
		Estimate the sum by rounding to the nearest hundred (three-digit addends).	SMMA_LO_01675
		Estimate the difference (three-digit, differences 100 to 800).	SMMA_LO_01676
		R: Identify the multiple of 5 that is closest to a given number.	SMMA_LO_01005
		R: Identify the multiple of 5 that is closer to a number (25 to 94).	SMMA_LO_01006
3.1.1.5	Compare and order whole numbers up to 100,000.	Compare sums (two-digit addends, multiples of 10).	SMMA_LO_00334
		Compare products (products 2 x 2 to 9 x 9).	SMMA_LO_00350
		Compare quotients (combinations 2 x 2 to 9 x 9).	SMMA_LO_00355
		Compare numbers (1,000 to 9,999).	SMMA_LO_01039
		Order four numbers from least to greatest (1,000 to 9,999).	SMMA_LO_01040
3.1.2.1	Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.	Add two multiples of 100 (student choice, sums 200 to 900).	SMMA_LO_00046
		Add two 3-digit numbers without regrouping (sums 200-999).	SMMA_LO_00058
		Add two addends (student choice, a two-digit and a three-digit addend, sums 120 to 998, regrouping).	SMMA_LO_00059
		Add two addends (student choice, three-digit addends, sums 200 to 998, regrouping).	SMMA_LO_00061
		Add two addends (student choice, a two-digit and a three-digit addend, sums 100 to 999, no regrouping).	SMMA_LO_00065
		Add two addends (student choice, three-digit addends, sums 200 to 999, no regrouping).	SMMA_LO_00071

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MN Standard	MN Standard Text	Item Description	Item ID
3.1.2.1	Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.	Find the missing addend in a number sentence (multiples of 10, sums 100 to 180).	SMMA_LO_00074
		Add two addends (student choice, three-digit addends, sums 1000 to 1899, regrouping).	SMMA_LO_00077
		Add two addends (student choice, three-digit addends, sums 300 to 989, no regrouping).	SMMA_LO_00081
		Add two addends (student choice, a two-digit and a three-digit addend, sums 120 to 999, regrouping).	SMMA_LO_00083
		Add two addends (student choice, three-digit addends, sums 210 to 999, regrouping).	SMMA_LO_00085
		Add two addends (a two-digit and a three-digit addend, sums 111 to 899, regrouping).	SMMA_LO_00089
		Add two addends (student choice, three-digit addends, sums 1010 to 1898, regrouping).	SMMA_LO_00091
		Add two addends (student choice, three-digit addends, sums 1000 to 1989, regrouping).	SMMA_LO_00093
		Add two addends (student choice, three-digit addends, sums 1000 to 1998, regrouping in all places).	SMMA_LO_00096
		Add three addends (student choice, a two-digit and 2 three-digit addends, sums 211 to 2097, regrouping in all places).	SMMA_LO_00097
		Add three addends (student choice, three-digit addends, sums 311 to 2997, regrouping in all places).	SMMA_LO_00098
		Add two addends (student choice, a three-digit and a four-digit addends, sums 1111 to 10998, regrouping in all places).	SMMA_LO_00099
		Add two addends (student choice, four-digit addends, sums 2111 to 19998, regrouping in all places).	SMMA_LO_00100
		Identify a number that is one or two greater than or less than a five- or six-digit number.	SMMA_LO_01072
		Subtract two multiples of 100 (student choice, minuends 200 to 900, subtrahends 100 to 800).	SMMA_LO_01447
		Subtract two multiples of 10 (minuends 100 to 180, subtrahends 10 to 90).	SMMA_LO_01448
		Subtract (student choice, minuends 110 to 199, two-digit subtrahends, no regrouping).	SMMA_LO_01456
		Subtract (student choice, minuends 122 to 199, subtrahends 11 to 88, no regrouping).	SMMA_LO_01457

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MN Standard	MN Standard Text	Item Description	Item ID
3.1.2.1	Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.	Subtract a three-digit multiple of 10 from a number (student choice, minuends 222 to 999, no regrouping).	SMMA_LO_01458
		Subtract (student choice, minuends and subtrahends 110 to 999).	SMMA_LO_01460
		Find the difference of two three-digit numbers.	SMMA_LO_01467
		Find the difference of two three-digit numbers (no regrouping).	SMMA_LO_01469
		Find the difference of two whole numbers (student choice, three-digit minuends, two-digit subtrahends, regrouping from hundreds place to tens place).	SMMA_LO_01471
		Find the difference of two whole numbers (student choice, three-digit minuends, two-digit subtrahends, regrouping from tens place to ones place).	SMMA_LO_01475
		Find the difference of two three-digit numbers (student choice, no regrouping).	SMMA_LO_01477
		Find the difference of two whole numbers (student choice, minuends 201 to 999, subtrahends 11 to 99, regrouping).	SMMA_LO_01479
		Find the difference of two whole numbers (student choice, three-digit minuends, two-digit subtrahends, regrouping from hundreds place to tens place).	SMMA_LO_01481
		Find the difference of two three-digit numbers (student choice, regrouping from the tens to the ones place).	SMMA_LO_01483
		Find the difference of two three-digit numbers (student choice, regrouping from the tens to the ones place).	SMMA_LO_01485
		Find the difference of two three-digit numbers (student choice, regrouping from the tens to the ones place).	SMMA_LO_01487
		Find the difference of two whole numbers (student choice, regrouping from tens place to ones place and hundreds place to tens place).	SMMA_LO_01489
		Find the difference of two three-digit numbers (student choice, regrouping from the tens to the ones place and the hundreds to the tens place).	SMMA_LO_01490
		Subtract a two-digit number from a three-digit number (regrouping from the tens place and hundreds place).	SMMA_LO_01492
		Subtract a three-digit number from a four-digit number (regrouping from the tens place).	SMMA_LO_01493
		Subtract a three-digit number from a four-digit number (regrouping from the tens and thousands places).	SMMA_LO_01494

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MN Standard	MN Standard Text	Item Description	Item ID
3.1.2.1	Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.	Subtract a three-digit number from a four-digit number (regrouping from the tens and thousands places).	SMMA_LO_01495
		Subtract a three-digit number from a four-digit number (regrouping from the tens and hundreds places).	SMMA_LO_01496
		Subtract a three-digit number from a four-digit number (regrouping from the tens and hundreds places).	SMMA_LO_01497
		Find the difference of two whole numbers (student choice, four-digit numbers, regrouping from tens and hundreds places).	SMMA_LO_01498
		Subtract a three-digit number from a four-digit number (student choice, regrouping from tens, hundreds, and thousands places).	SMMA_LO_01499
		Subtract a three-digit number from a four-digit number (student choice, regrouping from tens, hundreds, and thousands places).	SMMA_LO_01500
		Find the difference of two whole numbers (student choice, four-digit numbers, regrouping from tens and thousands places).	SMMA_LO_01501
		Subtract across zero (student choice, four-digit minuends with a 0 in the tens place, regrouping from the tens, hundreds, and thousands places).	SMMA_LO_01502
		Subtract across zero (student choice, four-digit minuends with a 0 in the tens place, regrouping from the tens, hundreds, and thousands places).	SMMA_LO_01503
		Find the difference of two whole numbers (student choice, four-digit numbers, regrouping from tens, hundreds, and thousands places).	SMMA_LO_01504
3.1.2.2	Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results. For example: The calculation $117 - 83 = 34$ can be checked by adding 83 and 34.	Find the missing addend in a number sentence (a two-digit and a three-digit addend, multiples of 10, sums 110 to 990).	SMMA_LO_00088
		Solve for a or b in $a + b = c$ (sums 101 to 199, no regrouping).	SMMA_LO_00345
		Use logical reasoning to complete an addition puzzle with two three-digit addends.	SMMA_LO_01261
		Solve an addition problem in context (3 three-digit addends, regrouping).	SMMA_LO_01597
		Solve a problem in context that involves finding the difference of 2 three-digit numbers.	SMMA_LO_01610

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3.1.2.3	Represent multiplication facts by using a variety of approaches, such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line and skip counting. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.	Find the missing dividend or divisor (combinations 4×4 to 7×7).	SMMA_LO_00285
		Use repeated addition to multiply (products 2×2 to 5×5).	SMMA_LO_00852
		Solve addition and multiplication problems (products 2×1 to 2×5).	SMMA_LO_00853
		Solve addition and multiplication problems (products 2×6 to 2×9).	SMMA_LO_00854
		Identify equivalent arrays with different factors.	SMMA_LO_01715
		Use partial sums and arrays to solve a two-digit by a one-digit multiplication problem.	SMMA_LO_01716
		Identify four arrays for a given product (products 6 to 30).	SMMA_LO_01858
		Create arrays for a given product (products 6 to 30).	SMMA_LO_01859
		Use a model to represents a word problem involving multiplicative comparison. Then, use an equation to represent the solution to the word problem.	SMMA_LO_02009
		Apply the Commutative Property of Multiplication as a strategy to multiply and divide whole numbers.	SMMA_LO_02036
		Apply the Distributive Property as a strategy to multiply whole numbers.	SMMA_LO_02038
		Represent a division problem as an unknown-factor problem; then find the missing factor.	SMMA_LO_02039
		3.1.2.4	Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems. For example: You have 27 people and 9 tables. If each table seats the same number of people, how many people will you put at each table? Another example: If you have 27 people and tables that will hold 9 people, how many tables will you need?
Compare sums (two-digit addends, multiples of 10).	SMMA_LO_00334		
Compare products (products 2×2 to 9×9).	SMMA_LO_00350		
Compare quotients (combinations 2×2 to 9×9).	SMMA_LO_00355		
Make a picture to solve a multiplication problem (basic facts).	SMMA_LO_01237		
Make a picture to solve a division problem (math facts).	SMMA_LO_01238		
Identify a picture that represents a division problem (math facts).	SMMA_LO_01245		
Identify a picture that represents a multiplication problem (basic facts).	SMMA_LO_01246		
Identify the method to solve a multiplication problem with extra information.	SMMA_LO_01267		
Identify the method to solve a division problem with extra information.	SMMA_LO_01268		
Identify the missing information needed to solve a two-step problem; then solve the problem.	SMMA_LO_01274		

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MN Standard	MN Standard Text	Item Description	Item ID
3.1.2.4	Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems. For example: You have 27 people and 9 tables. If each table seats the same number of people, how many people will you put at each table? Another example: If you have 27 people and tables that will hold 9 people, how many tables will you need?	Identify the missing information needed to solve a multiplication problem in context; then solve the problem.	SMMA_LO_01283
		Measure topsoil in a soil sample; calculate how long it took to form.	SMMA_LO_01323
		Make a picture to solve a partitive division problem (dividends to 20).	SMMA_LO_01564
		Make a picture to solve a quotitive division problem (dividends to 20).	SMMA_LO_01565
		Identify the number sentence that represents a division problem in context (model shown, dividends to 20).	SMMA_LO_01569
		Identify and solve an expression that represents a multiplication problem in context (model shown, products to 32).	SMMA_LO_01570
		Find twice the amount of the money shown (products to 20).	SMMA_LO_01571
		Solve a multiplication problem in context (counting feedback, products 2×2 to 5×5).	SMMA_LO_01572
		Solve a division problem in context by rounding the quotient to the next whole number (model shown).	SMMA_LO_01573
		Solve a multiplication problem in context (repeated addition feedback, products 2×2 to 5×5).	SMMA_LO_01578
		Solve a multiplication problem in context with extra information.	SMMA_LO_01589
		Identify and solve an expression that represents a multiplication problem in context (products 3×4 to 9×9).	SMMA_LO_01590
		Solve a problem using data in a table (twice, half, three times, or four times an amount).	SMMA_LO_01593
		Solve a one-step division problem (math facts 2×2 to 9×9).	SMMA_LO_01600
		Identify the expression that represents a division problem in context; then solve the problem (dividends 12 to 81).	SMMA_LO_01605
Use repeated subtraction to solve a division problem (dividends 4 to 24).	SMMA_LO_01664		
3.1.2.5	Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties. For example: $9 \times 26 = 9 \times (20 + 6) = 9 \times 20 + 9 \times 6 = 180 + 54 = 234$.	Multiply whole numbers (student choice, products 20×2 to 90×9 , multiples of 10).	SMMA_LO_00878
		Multiply whole numbers (products 2×20 to 90×9 , multiples of 10).	SMMA_LO_00885
		Multiply whole numbers (products 13×1 to 19×5).	SMMA_LO_00894
		Multiply whole numbers (products 12×6 to 19×9).	SMMA_LO_00896
		Apply the Associative Property of Multiplication as a strategy to multiply whole numbers.	SMMA_LO_02037

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MN Standard	MN Standard Text	Item Description	Item ID
3.1.3.1	Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line. For example: Parts of a shape ($\frac{3}{4}$ of a pie), parts of a set (3 out of 4 people), and measurements ($\frac{3}{4}$ of an inch).	Identify a model that represents a fraction (halves, thirds, fourths).	SMMA_LO_00404
		Identify a fraction that represents a model (halves, thirds, fourths).	SMMA_LO_00405
		Identify the set of shapes that represents a fraction (halves, thirds, fourths).	SMMA_LO_00406
		Identify the figure showing a fractional part shaded (halves, thirds, fourths).	SMMA_LO_00409
		Identify the fraction representing a shaded region (halves, thirds, fourths).	SMMA_LO_00410
		Match the word name of a fraction to a fraction (halves, thirds, fourths).	SMMA_LO_00411
		Identify the figure showing the fraction of a set shaded (halves, thirds, fourths).	SMMA_LO_00413
		Identify the fraction representing shaded items in a set (halves, thirds, fourths).	SMMA_LO_00414
		Identify a fractional portion of a set (halves, thirds, fourths).	SMMA_LO_00415
		Match the word name of the fraction to the fraction (halves to eighths).	SMMA_LO_00416
		Identify the picture that shows one number is one-half of another number.	SMMA_LO_00418
		Identify the figure showing a fraction of a region shaded (halves to eighths).	SMMA_LO_00420
		Identify a fraction representing the shaded part (halves to eighths).	SMMA_LO_00421
		Enter the fraction representing the shaded amount (halves to eighths).	SMMA_LO_00422
		Solve a problem by finding the fractional amount of a set (halves to eighths).	SMMA_LO_00424
		Identify a fractional portion of a set (halves to eighths).	SMMA_LO_00425
		Find a fraction equal to 1 (halves to eighths).	SMMA_LO_00427
		Using pictures, find a fractional amount of a whole number (product of halves to fourths and 2 to 16).	SMMA_LO_00428
		Enter the missing fraction on a number line (halves to eighths).	SMMA_LO_00430
		Identify a fraction for a given point on a number line divided into tenths, twelfths, or sixteenths.	SMMA_LO_00431
		Identify the fraction of a dollar a coin is worth (penny to half-dollar).	SMMA_LO_00809
		Model a fraction $\frac{a}{b}$ by filling in a out of b sections in a fraction model.	SMMA_LO_02034
		R: Identify the model that is divided into equal parts (2 to 8 parts).	SMMA_LO_00400
		R: Count the number of equal parts in a fractional model (2 to 8 parts).	SMMA_LO_00402
		R: Count the fractional parts and total number of parts in a region (halves, thirds, fourths).	SMMA_LO_00403

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MN Standard	MN Standard Text	Item Description	Item ID
3.1.3.1	Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line. For example: Parts of a shape ($\frac{3}{4}$ of a pie), parts of a set (3 out of 4 people), and measurements ($\frac{3}{4}$ of an inch).	R: Count the fractional parts and total number of parts in a set (halves, thirds, fourths).	SMMA_LO_00412
		R: Identify the figure divided into equal parts (halves to eighths).	SMMA_LO_00417
		R: Count shaded parts and the total number of parts (halves to eighths).	SMMA_LO_00419
		R: Count the shaded and total number of elements in a set (halves to eighths).	SMMA_LO_00423
		R: Partition shapes into equal parts.	SMMA_LO_02000
3.1.3.2	Understand that the size of a fractional part is relative to the size of the whole. For example: One-half of a small pizza is smaller than one-half of a large pizza, but both represent one-half.	Describe fractions in terms of the number of parts in a whole and the relative size of those parts (e.g., larger, smaller).	SMMA_LO_02137
3.1.3.3	Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.	Using a number line, compare fractions (like denominators, halves to sixteenths).	SMMA_LO_00434
		Compare fractions (like denominators, thirds to sixteenths).	SMMA_LO_00447
3.2.1.1	Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts. For example: Describe the relationship between number of chairs and number of legs by the rule that the number of legs is four times the number of chairs.	Describe the relationship between two sets of numbers in a relation or function using multiplication, addition, or subtraction.	SMMA_LO_01653
		Describe the relationship between two sets of numbers in a relation or function using subtraction (minuends 30 to 50, subtrahends 2 to 5).	SMMA_LO_01654
		Describe the relationship between two sets of numbers in a relation or function using multiplication (factors 2 - 5).	SMMA_LO_01655
		Extend a geometric pattern.	SMMA_LO_01691
3.2.2.2	Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true. For example: Find values of the unknowns that make each number sentence true $6 = p \div 9$ $24 = a \times b$ $5 \times 8 = 4 \times t$. Another example: How many math teams are competing if there is a total of 45 students with 5 students on each team? This situation can be represented by $5 \times n = 45$ or $45/5 = n$ or $45/n = 5$.	Solve for c in $a \times b = c$ (products 1×2 to 5×9).	SMMA_LO_00346
		Find the quotient (dividends 6×6 to 9×9).	SMMA_LO_00349
		Solve for a or b in $a \times b = c$ (products 1×2 to 5×9).	SMMA_LO_00351
		Solve for a or b in $a \div b = c$ (combinations 1×2 to 5×5).	SMMA_LO_00352
		Solve for c in $a \times b = c$ (products 6×2 to 9×12).	SMMA_LO_00353
		Solve for a or b in $a \div b = c$ (combinations 6×6 to 9×9).	SMMA_LO_00354
		Find the missing factor (products to 5×5).	SMMA_LO_00856
		Find the missing factor (products to 5×5).	SMMA_LO_00858
		Find the missing factor (products 1×6 to 5×9).	SMMA_LO_00860
Find the missing factor (products 1×6 to 5×9).	SMMA_LO_00862		

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MN Standard	MN Standard Text	Item Description	Item ID
3.2.2.2	<p>Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.</p> <p>For example: Find values of the unknowns that make each number sentence true</p> $6 = p \div 9$ $24 = a \times b$ $5 \times 8 = 4 \times t.$ <p>Another example: How many math teams are competing if there is a total of 45 students with 5 students on each team? This situation can be represented by</p> $5 \times n = 45 \text{ or } 45/5 = n \text{ or } 45/n = 5.$	Find the missing factor (products 1 x 6 to 9 x 5).	SMMA_LO_00864
		Find the missing factor (products 6 x 1 to 9 x 5).	SMMA_LO_00866
		Find the missing factor (products 6 x 6 to 9 x 9).	SMMA_LO_00873
		Find the missing factor (products 6 x 6 to 9 x 9).	SMMA_LO_00877
		Find the missing factor (products 2 x 2 to 12 x 12).	SMMA_LO_00881
		Find the missing factor (products 20 x 11 to 90 x 99, multiples of 10).	SMMA_LO_00891
		Solve a one-step equation (division).	SMMA_LO_01692
3.3.1.1	<p>Identify parallel and perpendicular lines in various contexts, and use them to describe and create geometric shapes, such as right triangles, rectangles, parallelograms and trapezoids.</p>	Identify parallel and perpendicular streets on a map.	SMMA_LO_00619
		Identify the set of vertices on a grid can be connected to form a figure (triangle, quadrilateral, rectangle, or square).	SMMA_LO_00625
		Draw parallel, perpendicular, or intersecting lines on a grid.	SMMA_LO_00638
		Identify the pairs of parallel line segments in a geometric drawing.	SMMA_LO_00639
		Draw a line segment using a ruler (to 1/4 inch and 0.5 cm).	SMMA_LO_00800
		R: Predict whether or not lines will intersect.	SMMA_LO_00598
		R: Count the points of intersection of two or more lines (0 to 5 intersection points).	SMMA_LO_00635
3.3.1.2	<p>Sketch polygons with a given number of sides or vertices (corners), such as pentagons, hexagons and octagons.</p>	R: Identify line segments.	SMMA_LO_00605
3.3.2.1	<p>Use half units when measuring distances.</p> <p>For example: Measure a person's height to the nearest half inch.</p>	Measure the length of a bar to the nearest 1/4 inch or 0.5 cm.	SMMA_LO_00822
3.3.2.2	<p>Find the perimeter of a polygon by adding the lengths of the sides.</p>	Find the perimeter of a rectangle (24 to 48 customary or metric units).	SMMA_LO_00169
		Find the perimeter of a figure (3 to 10 nonstandard units).	SMMA_LO_00757
		Given the length of one side of a rectangle, measure another side, and then find the perimeter.	SMMA_LO_00788
		Identify the expression for the perimeter of a figure.	SMMA_LO_00818
		Given the lengths of all sides, find the perimeter of a rectangle.	SMMA_LO_00821
		Given a perimeter, mark equilateral polygons with the same side measures.	SMMA_LO_00849

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3.3.2.3	Measure distances around objects. For example: Measure the distance around a classroom, or measure a person's wrist size.	Count to find the perimeter (3 to 9 nonstandard units).	SMMA_LO_00708
		Identify the shape with the greater perimeter (3 to 11 nonstandard units).	SMMA_LO_00734
3.3.3.1	Tell time to the minute, using digital and analog clocks. Determine elapsed time to the minute. For example: Your trip began at 9:50 a.m. and ended at 3:10 p.m. How long were you traveling?	Find the elapsed time (differences from 1 to 6 hours, does not cross 12 o'clock).	SMMA_LO_00142
		Find the time one to five hours before or after a given time (not crossing 12 o'clock).	SMMA_LO_00153
		Compare the difference of two times to a given time (1 to 24 hours, across 12 o'clock).	SMMA_LO_00155
		Find the time one to five hours before or after a given time (across 12 o'clock).	SMMA_LO_00162
		Find the time one to twelve hours and ten to fifty-five minutes from a starting time.	SMMA_LO_00175
		Determine elapsed time (1 to 6 hours, start and end times on the hour, can cross 12 o'clock).	SMMA_LO_00731
		Find the elapsed time (1 1/2 to 6 1/2 hours, start times and end times on the hour or half-hour, can cross 12 o'clock).	SMMA_LO_00770
		Show time to the minute using digital and analog clocks.	SMMA_LO_00771
		Show time 1 to 11 hours and 5 to 55 minutes before or after the time shown (analog and digital clocks).	SMMA_LO_00775
		Identify another way to state the time (minutes before or after the hour).	SMMA_LO_00779
		Find the time 5 to 50 minutes after the time shown (analog clock).	SMMA_LO_00798
		Solve a problem by identifying the time 1 to 2 hours after a given time (not crossing 12 o'clock).	SMMA_LO_01547
		Given the ending time and the elapsed time, find the starting time.	SMMA_LO_01613
		Set the digital clock to match the time on the analog clock to the exact minute.	SMMA_LO_01670
		Show time 1 to 11 hours and 5 to 55 minutes before or after the time shown (analog and digital clocks).	SMMA_LO_02155
R: Show time to 5-minute intervals using digital and analog clocks.	SMMA_LO_00744		
R: Match digital times with descriptions (e.g., quarter to or quarter past).	SMMA_LO_00806		
3.3.3.2	Know relationships among units of time. For example: Know the number of minutes in an hour, days in a week and months in a year.	Find a fraction of an hour in minutes (1/4, 1/3, 1/2, 2/3, or 3/4 hour).	SMMA_LO_00817
		Convert hours to minutes.	SMMA_LO_01672

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3.3.3.3	<p>Make change up to one dollar in several different ways, including with as few coins as possible.</p> <p>For example: A chocolate bar costs \$1.84. You pay for it with \$2. Give two possible ways to make change.</p>	Make a picture to find the change received from a purchase (change back from \$1.00).	SMMA_LO_01583
		Find the change from one dollar (item costs 55 to 99 cents).	SMMA_LO_01598
		R: Identify the number of dollars and dimes that represent a given amount (\$1.10 to \$3.50).	SMMA_LO_00180
		R: Write the value of a set of dimes in dollar form (\$1.10 to \$3.90).	SMMA_LO_00183
		R: Show a decimal money amount in dollars and coins (\$1.00 to \$5.00).	SMMA_LO_00774
		R: Write the value of a set of coins as a decimal amount (\$1.00 to \$3.20).	SMMA_LO_00784
		R: Find the total value of a group of quarters, dimes, nickels, and pennies (sums to \$1.65).	SMMA_LO_01611
3.3.3.4	<p>Use an analog thermometer to determine temperature to the nearest degree in Fahrenheit and Celsius.</p> <p>For example: Read the temperature in a room with a thermometer that has both Fahrenheit and Celsius scales. Use the thermometer to compare Celsius and Fahrenheit readings.</p>	Read a thermometer to the nearest 10 degrees (Fahrenheit).	SMMA_LO_00768
3.4.1.1	<p>Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.</p>	Read and interpret a horizontal or vertical pictograph (four to six items).	SMMA_LO_00131
		Determine the most or the least from a horizontal or vertical pictograph (four to six items).	SMMA_LO_00135
		Read and interpret a horizontal pictograph with a scale of 2 (five items).	SMMA_LO_00140
		Make a pictograph from a set of data.	SMMA_LO_00146
		Read and interpret a horizontal or vertical pictograph (six items).	SMMA_LO_00150
		Read a pictograph (3 categories, 1 to 9 items per category).	SMMA_LO_01124
		Analyze a line plot to find the total number of items that fall at, above, or below a given value.	SMMA_LO_01156
		Read and interpret a pictograph with a scale of 2, 5 or 10.	SMMA_LO_01158
		Identify the mode of a set of data.	SMMA_LO_01164
		Compare the amounts of two rows in a pictograph whose scale is 2, 5, or 10 items per picture.	SMMA_LO_01172
		Compare the amounts of two rows in a pictograph whose scale is 2, 5, or 10 items per picture.	SMMA_LO_01174
		Complete and interpret a pictograph.	SMMA_LO_01207
Read and interpret a pictograph about birds counted (2 to 5 birds in each row).	SMMA_LO_01299		

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MN Standard	MN Standard Text	Item Description	Item ID
3.4.1.1	Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.	Read a bar graph and answer questions about tree growth over time.	SMMA_LO_01304
		Create a table based on data from a bar graph.	SMMA_LO_01645
		Create a bar graph using data from a chart of values.	SMMA_LO_01696
		Create a bar graph.	SMMA_LO_01769
		R: Given a chart of tree growth, infer which of two years there was more rainfall.	SMMA_LO_01305
		R: Formulate questions around numerical data.	SMMA_LO_01642
		R: Choose a title for a line plot and label the units.	SMMA_LO_01643
4.1.1.1	Demonstrate fluency with multiplication and division facts.	Divide using basic facts (combinations 5 x 5).	SMMA_LO_00280
		Divide using basic facts (combinations 2 x 6 to 9 x 5).	SMMA_LO_00282
		Divide (combinations 6 x 6 to 9 x 9).	SMMA_LO_00284
		Divide (combinations 2 x 10 to 5 x 12).	SMMA_LO_00286
		Divide (combinations 5 x 9 to 6 x 12).	SMMA_LO_00288
		Divide (combinations 2 x 13 to 5 x 19, no remainder).	SMMA_LO_00305
		Complete fact families with four facts (products 2 x 3 to 8 x 9).	SMMA_LO_00344
		Multiply whole numbers (products to 5 x 5).	SMMA_LO_00855
		Multiply whole numbers (products 6 x 1 to 9 x 5).	SMMA_LO_00857
		Multiply whole numbers displayed horizontally (products 1 x 6 to 5 x 9).	SMMA_LO_00859
		Multiply whole numbers (products 1 x 2 to 5 x 5).	SMMA_LO_00861
		Multiply whole numbers (products 1 x 6 to 5 x 9).	SMMA_LO_00863
		Multiply whole numbers (products 6 x 2 to 9 x 5).	SMMA_LO_00865
		Multiply whole numbers (products 6 x 6 to 9 x 9).	SMMA_LO_00867
		Multiply whole numbers displayed horizontally (products 6 x 6 to 9 x 9).	SMMA_LO_00868
		Multiply whole numbers (products 10 x 2 to 12 x 12).	SMMA_LO_00871
		Multiply whole numbers (products 2 x 12 to 12 x 12).	SMMA_LO_00875
4.1.1.2	Use an understanding of place value to multiply a number by 10, 100 and 1000.	Multiply one- to five-digit whole numbers by powers of ten (10 to 100,000).	SMMA_LO_01078

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MN Standard	MN Standard Text	Item Description	Item ID
4.1.1.3	Multiply multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.	Multiply a two-digit number by a one-digit number (products 10×1 to 12×4).	SMMA_LO_00869
		Multiply whole numbers (student choice, products 10×2 to 15×5).	SMMA_LO_00870
		Multiply whole numbers (student choice, products 16×2 to 19×5).	SMMA_LO_00872
		Multiply whole numbers (student choice, products 10×6 to 15×9).	SMMA_LO_00874
		Multiply whole numbers (student choice, products 16×6 to 19×9).	SMMA_LO_00876
		Multiply whole numbers (student choice, products 21×2 to 99×9).	SMMA_LO_00880
		Multiply whole numbers (student choice, products 100×2 to 990×9 , multiples of 10).	SMMA_LO_00882
		Multiply whole numbers (student choice, products 10×10 to 15×90 , multiples of 10).	SMMA_LO_00884
		Multiply whole numbers (student choice, products 101×2 to 999×9).	SMMA_LO_00886
		Multiply whole numbers (products 20×20 to 90×90 , multiples of 10).	SMMA_LO_00889
		Multiply whole numbers (student choice, products 1000×2 to 9999×9).	SMMA_LO_00892
		Find the missing factor (products 20×20 to 90×90 , multiples of 10).	SMMA_LO_00893
		Multiply whole numbers (student choice, products 11×11 to 15×99).	SMMA_LO_00899
		Multiply whole numbers (products $10,000 \times 2$ to $99,999 \times 9$).	SMMA_LO_00900
		Multiply whole numbers (student choice, products 16×11 to 19×99).	SMMA_LO_00901
		Multiply whole numbers (student choice, products 100×20 to 990×90 , multiples of 10).	SMMA_LO_00902
		Multiply whole numbers (student choice, products 21×11 to 99×99).	SMMA_LO_00903
		Multiply whole numbers (student choice, products 101×20 to 999×90 , multiples of 10).	SMMA_LO_00904
		Multiply whole numbers (student choice, products 100×21 to 990×90 , multiples of 10).	SMMA_LO_00905
		Multiply (student choice, products 1000×20 to 9999×90 , multiples of 10).	SMMA_LO_00906
Multiply whole numbers (student choice, products 101×21 to 999×99).	SMMA_LO_00907		
Multiply by a multiple of 10 (student choice, $10,000 \times 20$ to $99,999 \times 90$).	SMMA_LO_00908		
Multiply whole numbers (student choice, products 1000×21 to 9999×99).	SMMA_LO_00909		

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MN Standard	MN Standard Text	Item Description	Item ID
4.1.1.3	Multiply multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.	Multiply whole numbers (student choice, 10,000 × 21 to 99,999 × 99).	SMMA_LO_00910
		Multiply whole numbers (multiples of 10 or 100).	SMMA_LO_00911
		Identify equivalent arrays with different factors (two-digit factors).	SMMA_LO_01733
		Use an area model to solve a multiplication problem (two-digit factors).	SMMA_LO_01734
4.1.1.4	Estimate products and quotients of multi-digit whole numbers by using rounding, benchmarks and place value to assess the reasonableness of results. For example: 53×38 is between 50×30 and 60×40 , or between 1500 and 2400, and $411/73$ is between 5 and 6.	Estimate the quotient to the nearest ten (three-digit dividends, one-digit divisors).	SMMA_LO_00314
		Choose the best estimate for a long division problem (three-digit dividends, two-digit divisors).	SMMA_LO_00315
		Estimate the product of two numbers (factors 101 to 949).	SMMA_LO_00912
		Estimate the product of three factors (1,000 to 350,000).	SMMA_LO_01099
		Estimate the sum, difference, product or quotient to solve a problem in context (round to the nearest thousand).	SMMA_LO_01109
		Estimate the distance by rounding ($d = rt$).	SMMA_LO_01606
		Estimate the product by rounding each factor.	SMMA_LO_01622
		R: Estimate the product by rounding the second factor.	SMMA_LO_01603
4.1.1.5	Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.	Use a picture to solve an addition problem with three addends.	SMMA_LO_01286
		Find the missing information needed to solve a problem; then solve.	SMMA_LO_01293
		Make a picture to solve a multistep addition and multiplication problem in context.	SMMA_LO_01592
		Solve a multiplication problem in context (one-, two-, and three-digit factors).	SMMA_LO_01604
		Solve a two-step addition problem to find a person's age 5 to 20 years from now.	SMMA_LO_01631
		R: Identify the missing operation in a subtraction or addition number sentence (basic facts).	SMMA_LO_01031
		R: Identify the missing operation (sums 20 to 99, differences 10 to 70).	SMMA_LO_01055
		R: Identify a number sentence that can be used to solve an addition, a subtraction, or a multiplication problem (one- or two-digit).	SMMA_LO_01254
		R: Identify extra information in a problem.	SMMA_LO_01272
		R: Identify an expression that can be used to solve a problem (inverse operations).	SMMA_LO_01275
		R: Choose a method to solve a two-step problem.	SMMA_LO_01289
		R: Solve a two-step multiplication and addition problem in context.	SMMA_LO_01633

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4.1.1.6	Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction. For example: A group of 324 students is going to a museum in 6 buses. If each bus has the same number of students, how many students will be on each bus?	Divide (combinations 2 x 20 to 5 x 90).	SMMA_LO_00291
		Divide (combinations 6 x 20 to 9 x 90).	SMMA_LO_00293
		Find the quotient of b divided by a (combinations 6 x 13 to 9 x 19).	SMMA_LO_00312
4.1.2.1	Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.	Using models, find equivalent fractions (halves to sixteenths).	SMMA_LO_00433
		Identify the figures with the equivalent fractional parts shaded.	SMMA_LO_00483
		Identify two equivalent fractions for 1/2.	SMMA_LO_01708
		Model equivalent fractions; identify equivalent fractions on a number line.	SMMA_LO_02035
4.1.2.2	Locate fractions on a number line. Use models to order and compare whole numbers and fractions, including mixed numbers and improper fractions. For example: Locate 5/3 and 13/4 on a number line and give a comparison statement about these two fractions, such as " 5/3 is less than 13/4."	Use a model to compare two fractions (halves to eighths, unlike denominators).	SMMA_LO_00429
		Compare fractions to 1 on the number line (halves to eighths).	SMMA_LO_00432
		Using models, compare fractions (unlike denominators, numerators equal to one, halves to sixteenths).	SMMA_LO_00435
		Using models, compare fractions (unlike denominators, halves to sixteenths).	SMMA_LO_00436
		Identify the fraction that is greater than a given fraction (unlike denominators, halves to eighths).	SMMA_LO_00437
		Using models, compare fractions (unlike denominators, halves to eighths).	SMMA_LO_00438
		Order three fractions from least to greatest (unlike denominators, halves to twelfths).	SMMA_LO_00440
		Compare fractions to 1 (halves to sixteenths).	SMMA_LO_00448
		Represent a unit fraction 1/b by partitioning a number line and then finding 1/b on it.	SMMA_LO_02148
4.1.2.3	Use fraction models to add and subtract fractions with like denominators in real-world and mathematical situations. Develop a rule for addition and subtraction of fractions with like denominators.	Using models, add fractions, no simplifying (like denominators, thirds to eighths).	SMMA_LO_00441
		Using models, subtract fractions, no simplifying (like denominators, halves to eighths).	SMMA_LO_00442
		Add fractions with like denominators (no simplifying).	SMMA_LO_01709
		Use a model and an equation to solve word problems involving the addition of fractions with like denominators.	SMMA_LO_02004

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4.1.2.3	Use fraction models to add and subtract fractions with like denominators in real-world and mathematical situations. Develop a rule for addition and subtraction of fractions with like denominators.	Use a model and an equation to solve word problems involving the subtraction of fractions with like denominators.	SMMA_LO_02016
		Determine addition expressions that are equivalent to a given fraction.	SMMA_LO_02146
4.1.2.4	Read and write decimals with words and symbols; use place value to describe decimals in terms of thousands, hundreds, tens, ones, tenths, hundredths and thousandths. For example: Writing 362.45 is a shorter way of writing the sum: 3 hundreds + 6 tens + 2 ones + 4 tenths + 5 hundredths, which can also be written as: three hundred sixty-two and forty-five hundredths.	Identify the decimal number with a 0 to 9 in the tenths or hundredths place.	SMMA_LO_00202
		Match the word name with the decimal number (0.10 to 9.99).	SMMA_LO_00204
		Match a decimal number to its word name (to thousandths).	SMMA_LO_00227
		Identify the place value of a digit in a decimal number (tenths to ten thousandths).	SMMA_LO_00241
		Enter a decimal number in a place-value chart (tenths to thousandths).	SMMA_LO_01089
4.1.2.5	Compare and order decimals and whole numbers using place value, a number line and models such as grids and base 10 blocks.	Compare decimal numbers (0.1 to 9.9).	SMMA_LO_00191
		Compare two decimal numbers (10.01 to 99.99).	SMMA_LO_00216
		Order three decimal numbers (tenths to hundredths).	SMMA_LO_00218
		Compare decimal numbers (to thousandths).	SMMA_LO_00225
		Order three decimals from least to greatest (to thousandths).	SMMA_LO_00236
		Match a decimal number to a model (thousandths).	SMMA_LO_00242
		Identify the symbol (< or >) needed to complete the inequality.	SMMA_LO_00254
		Identify a list of decimal numbers ordered from least to greatest.	SMMA_LO_01103
		Order five numbers from least to greatest (three- to six-digit numbers).	SMMA_LO_01710
		Compare two whole numbers (three to seven-digit numbers).	SMMA_LO_01711
		R: Enter a decimal number on a number line (1.11 to 9.89).	SMMA_LO_00213
		R: Find the missing decimal number on a number line (1.0 to 9.89).	SMMA_LO_00215
4.1.2.6	Read and write tenths and hundredths in decimal and fraction notations using words and symbols; know the fraction and decimal equivalents for halves and fourths. For example: $1/2 = 0.5 = 0.50$ and $7/4 = 13/4 = 1.75$, which can also be written as one and three-fourths or one and seventy-five hundredths.	Match a fraction to a decimal (tenths, 0.1 to 0.9).	SMMA_LO_00184
		Determine the fraction and decimal that represent a model (base-ten blocks, tenths, 0.1 to 0.9).	SMMA_LO_00185
		Enter a decimal number for a mixed number (tenths, 1.1 to 9.9).	SMMA_LO_00187
		Find the missing decimal number on a number line (tenths, 0.1 to 0.9).	SMMA_LO_00188
		Enter the decimal equivalent for a mixed number (hundredths, 0.10 to 9.99).	SMMA_LO_00205
		Determine the equivalent fraction for a decimal (the denominator is a factor of 100).	SMMA_LO_00259
		R: Mark the point on a number line that represents a decimal number (0.1 to 0.9).	SMMA_LO_00186

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4.2.1.1	<p>Create and use input-output rules involving addition, subtraction, multiplication and division to solve problems in various contexts. Record the inputs and outputs in a chart or table.</p> <p>For example: If the rule is "multiply by 3 and add 4," record the outputs for given inputs in a table.</p> <p>Another example: A student is given these three arrangements of dots:</p> <p style="text-align: center;"> </p> <p>Identify a pattern that is consistent with these figures, create an input-output rule that describes the pattern, and use the rule to find the number of dots in the 10th figure.</p>	Determine the output of a one-function machine, given an input and sample inputs and outputs (combinations 2 x 2 to 9 x 9).	SMMA_LO_00358
		Work backward to solve a two-step problem.	SMMA_LO_01288
		Identify the one-step rule in the relation or function (addition and subtraction).	SMMA_LO_01722
		Extend an iterative pattern.	SMMA_LO_01754
4.2.2.1	<p>Understand how to interpret number sentences involving multiplication, division and unknowns. Use real-world situations involving multiplication or division to represent number sentences.</p> <p>For example: The number sentence $a \times b = 60$ can be represented by the situation in which chairs are being arranged in equal rows and the total number of chairs is 60.</p>	Translate a verbal statement of a multiplicative comparison into a multiplication equation.	SMMA_LO_02008
		Interpret a multiplication equation by writing a comparison statement.	SMMA_LO_02025
4.2.2.2	<p>Use multiplication, division and unknowns to represent a given problem situation using a number sentence. Use number sense, properties of multiplication, and the relationship between multiplication and division to find values for the unknowns that make the number sentences true.</p> <p>For example: If \$84 is to be shared equally among a group of children, the amount of money each child receives can be determined using the number sentence $84 \div n = d$.</p> <p>Another example: Find values of the unknowns that make each number sentence true: $12 \times m = 36$ $s = 256 \div t$.</p>	Solve for a or b in $a \times b = c$ (products 6 x 2 to 9 x 12).	SMMA_LO_00357
		Solve for a or b in $a \times b = x$ (products 2 x 10 to 12 x 12).	SMMA_LO_00363
		Solve for a or b in $a \times b = x$ (products 2 x 20 to 12 x 90, multiples of 10).	SMMA_LO_00366
		Identify related multiplication and division number sentences that can be used to solve a problem.	SMMA_LO_01080
		Identify a number sentence that could be used to solve a multiplication problem.	SMMA_LO_01270
		Solve a one-step equation (multiplication).	SMMA_LO_01690
		Solve a one-step equation in context (division, two-digit whole numbers).	SMMA_LO_01745
		Solve a one-step equation in context (division, two-digit whole numbers).	SMMA_LO_01747

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4.3.1.1	Describe, classify and sketch triangles, including equilateral, right, obtuse and acute triangles. Recognize triangles in various contexts.	Identify acute, obtuse, and right triangles.	SMMA_LO_00655
		Identify equilateral, isosceles, and scalene triangles.	SMMA_LO_00658
		Identify all triangles of a particular class (acute, right, or obtuse).	SMMA_LO_01774
4.3.1.2	Describe, classify and draw quadrilaterals, including squares, rectangles, trapezoids, rhombuses, parallelograms and kites. Recognize quadrilaterals in various contexts.	Identify line segments in three- and four-sided figures.	SMMA_LO_00579
		Identify the quadrilaterals in a set of figures.	SMMA_LO_00615
		Identify parallelograms, rhombuses, and trapezoids.	SMMA_LO_00620
		In a set of quadrilaterals, identify all the parallelograms.	SMMA_LO_00621
		Identify the true statement about a relationship among quadrilaterals.	SMMA_LO_00656
		Identify the quadrilaterals that are trapezoids or rhombuses.	SMMA_LO_00659
4.3.2.1	Measure angles in geometric figures and real-world objects with a protractor or angle ruler.	Given the measure of an angle (initial side at 0 degrees, measure 10 to 180 degrees).	SMMA_LO_00631
		Use a protractor to measure an angle.	SMMA_LO_00636
		Measure an angle using the appropriate protractor.	SMMA_LO_00646
		Use a protractor to measure an angle in a triangle or quadrilateral; then find the sum of all the angles in the figure.	SMMA_LO_00650
		Measure complementary or supplementary angles and find the sum of the angle measures.	SMMA_LO_00661
		Measure angles in degrees using a protractor.	SMMA_LO_00663
		R: Match the labeled angles to the correct angle notation.	SMMA_LO_00617
		R: Select the appropriate protractor to measure an angle.	SMMA_LO_00644
		R: Identify the better estimate for an angle measure.	SMMA_LO_00657
4.3.2.2	Compare angles according to size. Classify angles as acute, right and obtuse. For example: Compare different hockey sticks according to the angle between the blade and the shaft.	Identify an angle as acute, right, or obtuse.	SMMA_LO_00628
		Identify right, acute, and obtuse angles in polygons.	SMMA_LO_00630
		Classify and sort two-dimensional geometric figures by properties and attributes.	SMMA_LO_01728
		R: Determine whether an angle is larger than, smaller than, or the same size as a right angle.	SMMA_LO_00624

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4.3.2.3	Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns. For example: How many copies of a square sheet of paper are needed to cover the classroom door? Measure the length and width of the door to the nearest inch and compute the area of the door.	Count squares to find the area (2 to 8 units).	SMMA_LO_00706
		Find the sum of the areas of two figures (sums 3 to 8, nonstandard units).	SMMA_LO_00752
		Find the area of a rectangle (5 to 25 square centimeters).	SMMA_LO_00773
		Identify the figure in a set with the least or greatest area (figures are made up of squares).	SMMA_LO_00776
		Count squares and half squares to find the area of a figure in square centimeters.	SMMA_LO_00783
		Identify a figure with a given area on a geoboard (4 to 15 square units).	SMMA_LO_00802
		Find the area of an irregular figure displayed on a grid (12 to 50 square units).	SMMA_LO_01280
		Find the area of a rectangle by tiling it; complete an equation to show that the area is the same as would be found by multiplying the side lengths.	SMMA_LO_02029
		Tile a rectangle to find its area; represent the area of the rectangle in two different ways (length times width and the sum of the areas of two smaller rectangles).	SMMA_LO_02031
		R: Identify a unit square and what attribute it is used to measure.	SMMA_LO_02027
4.3.2.4	Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.	Find the area of a rectangle (36 to 144 customary or metric square units).	SMMA_LO_00173
		Using a grid, find the area of a simple figure (8 to 60 nonstandard units).	SMMA_LO_00786
		Identify examples of relationships between area and perimeter.	SMMA_LO_00850
		Find the area of a plane figure made up of square units and halves of square units.	SMMA_LO_02028
		Multiply side lengths to find the area of a rectangle in a real-world context; use area to represent a whole-number product by arranging tiles in a rectangle.	SMMA_LO_02030
		Find the area of a rectilinear figure in a context by decomposing it into two rectangles.	SMMA_LO_02032
4.3.3.2	Apply reflections (flips) to figures by reflecting over vertical or horizontal lines and relate reflections to lines of symmetry.	Identify a set of geometric figures that show a reflection (flip).	SMMA_LO_00648
		R: Identify the vertical line of symmetry.	SMMA_LO_00595
		R: Identify the horizontal line of symmetry.	SMMA_LO_00597
		R: Draw a vertical or horizontal line of symmetry.	SMMA_LO_00608
		R: Identify lines that are lines of symmetry.	SMMA_LO_00623
		R: Complete a symmetrical drawing.	SMMA_LO_00647
		R: Identify the lines of symmetry in an object.	SMMA_LO_01699
		R: Identify the shape with a given number of lines of symmetry.	SMMA_LO_01773

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4.3.3.3	Apply rotations (turns) of 90° clockwise or counterclockwise.	Rotate a figure on a coordinate plane; verify properties of the rotation.	SMMA_LO_02121
4.3.3.4	Recognize that translations, reflections and rotations preserve congruency and use them to show that two figures are congruent.	Identify congruent figures on a geoboard.	SMMA_LO_00606
		In a figure in which parallel lines are cut by a transversal, identify the transformations that would line one angle up with another angle. Then, describe the relationship between the two angles.	SMMA_LO_02129
		R: Identify a figure as a slide, reflection (flip), or turn of another figure.	SMMA_LO_00599
		R: Identify the figure that is the same size and shape as a given figure.	SMMA_LO_00600
		R: Identify a reflection, a rotation, and a translation of a geometric figure.	SMMA_LO_00665
4.4.1.1	Use tables, bar graphs, timelines and Venn diagrams to display data sets. The data may include fractions or decimals. Understand that spreadsheet tables and graphs can be used to display data.	Graph and interpret rainfall data in a chart.	SMMA_LO_01328
		Determine the number of calories in multiple servings given data in a chart.	SMMA_LO_01333
		Read and interpret a table about temperature.	SMMA_LO_01646
5.1.1.1	Divide multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms. Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction or mixed number, or a decimal. For example: Dividing 153 by 7 can be used to convert the improper fraction 153/7 to the mixed number 216/7.	Divide using the long division algorithm (three-digit dividend, one-digit divisor, no remainder).	SMMA_LO_00296
		Divide using the long division algorithm (three-digit dividend, one-digit divisor, remainder).	SMMA_LO_00297
		Divide using the long division algorithm (three-digit dividend, one-digit divisor, remainder).	SMMA_LO_00298
		Multiply multiples of 10 using mental math (20 x 20 to 90 x 90).	SMMA_LO_00299
		Divide using the long division algorithm (four-digit dividend, one-digit divisor, remainder).	SMMA_LO_00300
		Divide using the long division algorithm (three-digit number, two-digit divisor, remainder).	SMMA_LO_00304
		R: Divide using the long division algorithm (one-digit divisor, no remainder).	SMMA_LO_00290
		R: Divide using the long division algorithm (one-digit divisor, remainder).	SMMA_LO_00292
		R: Divide using the long division algorithm (one-digit divisor, no remainder).	SMMA_LO_00294
R: Divide using the long division algorithm (one-digit divisor, remainder).	SMMA_LO_00295		

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5.1.1.2	Consider the context in which a problem is situated to select the most useful form of the quotient for the solution and use the context to interpret the quotient appropriately. For example: If 77 amusement ride tickets are to be distributed equally among 4 children, each child will receive 19 tickets, and there will be one left over. If \$77 is to be distributed equally among 4 children, each will receive \$19.25, with nothing left over.	Solve a division problem in context (remainder).	SMMA_LO_01616
		Interpret the quotient and remainder of a division problem in context (three-digit dividends).	SMMA_LO_01617
		Share a set of objects equally to show a division problem (6, 7, 10, or 12 objects).	SMMA_LO_01663
5.1.1.3	Estimate solutions to arithmetic problems in order to assess the reasonableness of results.	Estimate the missing factor in a number sentence (round to the nearest ten, products 2,010 to 81,090).	SMMA_LO_00913
		Identify the most reasonable quantity for a context (order of magnitude differs).	SMMA_LO_01586
		Determine the number of dollar bills needed to buy three to five items.	SMMA_LO_01623
		R: Estimate the quotient in a long division problem (three-digit dividend, two-digit divisor, remainder).	SMMA_LO_00301
5.1.1.4	Solve real-world and mathematical problems requiring addition, subtraction, multiplication and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results. For example: The calculation $117 \div 9 = 13$ can be checked by multiplying 9 and 13.	Identify a reasonable answer for a division problem.	SMMA_LO_00246
		Find the missing dividend or divisor (combinations 20×20 to 90×90).	SMMA_LO_00303
		Find the missing dividend or divisor (combinations 2×13 to 5×19).	SMMA_LO_00309
		Finding the missing dividend or divisor (combinations 6×13 to 9×19).	SMMA_LO_00310
		Identify if the sum, difference, or product of two numbers is even or odd.	SMMA_LO_01086
		R: Identify the missing operation in a number sentence (all operations).	SMMA_LO_01074
5.1.2.1	Read and write decimals using place value to describe decimals in terms of groups from millionths to millions. For example: Possible names for the number 0.0037 are: 37 ten thousandths 3 thousandths + 7 ten thousandths; a possible name for the number 1.5 is 15 tenths.	Identify a word name for a four-, five- or six-digit numbers.	SMMA_LO_01043
		Identify a number with a given digit in the ones to hundred thousands place.	SMMA_LO_01045
		Identify the expanded notation of a five- or six-digit number.	SMMA_LO_01046
		Identify a number with a given digit in the thousands to hundred millions place.	SMMA_LO_01064
		Enter a number in a place-value chart (10,000 to 999,999).	SMMA_LO_01070
		Enter each individual digit in a place-value chart for a five- to nine-digit number given the name of the number.	SMMA_LO_01075
		Identify the number when given the word name (10,000 to 999,999).	SMMA_LO_01076

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5.1.2.1	Read and write decimals using place value to describe decimals in terms of groups from millionths to millions. For example: Possible names for the number 0.0037 are: 37 ten thousandths 3 thousandths + 7 ten thousandths; a possible name for the number 1.5 is 15 tenths.	Express a number in expanded notation or determine the number from an expanded notation.	SMMA_LO_01097
		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.	SMMA_LO_02045
5.1.2.3	Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line. For example: Which is larger 1.25 or 6/5? Another example: In order to work properly, a part must fit through a 0.24 inch wide space. If a part is 1/4 inch wide, will it fit?	Identify the greatest or least fraction in a problem (unlike denominators).	SMMA_LO_00482
		Identify a list of fractions that is ordered from least to greatest.	SMMA_LO_00497
5.1.2.4	Read and write tenths and hundredths in decimal and fraction notations using words and symbols; know the fraction and decimal equivalents for halves and fourths. For example: $1/2 = 0.5 = 0.50$ and $7/4 = 13/4 = 1.75$, which can also be written as one and three-fourths or one and seventy-five hundredths.	Match a decimal number to an equivalent fraction (tenths to thousandths).	SMMA_LO_00224
		Express a mixed number as a decimal.	SMMA_LO_00260
		Rewrite a fraction as a mixed number (halves to eighths).	SMMA_LO_00449
		Identify decimals or fractions that are not equivalent to a given decimal or fraction.	SMMA_LO_01094
		Identify a number not equivalent to four others.	SMMA_LO_01116
		Use fraction models to relate a fraction to a whole number times a unit fraction. Then, write an equation for this relationship.	SMMA_LO_02005
		Use fraction models to rewrite the product of a whole number and a fraction as the product of a whole number and a unit fraction. Then, find the product.	SMMA_LO_02006
5.1.2.5	Round numbers to the nearest 0.1, 0.01 and 0.001. For example: Fifth grade students used a calculator to find the mean of the monthly allowance in their class. The calculator display shows 25.80645161. Round this number to the nearest cent.	Round a decimal to the nearest tenth, hundredth, or whole number.	SMMA_LO_00230
5.1.3.1	Add and subtract decimals and fractions, using efficient and generalizable procedures, including standard algorithms.	Subtract metric length or weight measurements expressed as decimals (to tenths, difference 1.2 to 8.9, regrouping).	SMMA_LO_00159
		Add two decimal numbers (tenths, sums 1.0 to 2.0, regrouping).	SMMA_LO_00192
		Add two decimal numbers using mental math (sums 1.1 to 9.9, no regrouping).	SMMA_LO_00193

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5.1.3.1	Add and subtract decimals and fractions, using efficient and generalizable procedures, including standard algorithms.	Subtract decimal numbers using mental math (minuends and subtrahends 0.1 to 9.9, no regrouping).	SMMA_LO_00195
		Add two decimal numbers using mental math (sums 10.1 to 99.9, no regrouping).	SMMA_LO_00196
		Subtract decimal numbers using mental math (minuends and subtrahends 10.1 to 99.9, no regrouping).	SMMA_LO_00197
		Subtract decimal numbers (minuends 2.0 to 9.9, subtrahends 0.1 to 0.9, regrouping).	SMMA_LO_00198
		Add decimal numbers (sums less than 10.0, regrouping).	SMMA_LO_00199
		Add two decimal numbers (sums 1.0 to 98.9, regrouping).	SMMA_LO_00201
		Subtract decimal numbers (minuends and subtrahends 0.1 to 99.9, with or without regrouping).	SMMA_LO_00203
		Add decimals using addition facts (sums 0.02-0.99).	SMMA_LO_00206
		Subtract decimals numbers (minuends and subtrahends 0.01 to 9.99).	SMMA_LO_00207
		Subtract money amounts (sums less than \$17.00, regrouping).	SMMA_LO_00208
		Add or subtract decimals using mental math (sums less than 1.00, with or without regrouping).	SMMA_LO_00210
		Align the decimal numbers in a vertical addition problem; then solve (hundredths, regrouping).	SMMA_LO_00211
		Align the decimal numbers in a vertical subtraction problem; then solve (hundredths, regrouping).	SMMA_LO_00212
		Subtract money amounts (sums less than \$50.00, regrouping).	SMMA_LO_00214
		Add decimals numbers using mental math (sums 1.0 to 99.8, regrouping).	SMMA_LO_00217
		Align the decimal numbers for a vertical addition problem; then solve (to thousandths).	SMMA_LO_00226
		Align the decimal numbers for a vertical subtraction problem; then solve (to thousandths).	SMMA_LO_00228
		Align the decimal numbers in a vertical subtraction problem; then solve (decimals to thousandths).	SMMA_LO_00233
		Subtract decimals with regrouping (to ten-thousandths).	SMMA_LO_00243
		Identify the difference when a fraction is subtracted from 1 (fourths to twelfths).	SMMA_LO_00445
Subtract a fraction from 1; simplify (halves to sixteenths).	SMMA_LO_00464		

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5.1.3.1	Add and subtract decimals and fractions, using efficient and generalizable procedures, including standard algorithms.	Find a decimal number that is either greater than or less than two decimal numbers.	SMMA_LO_01118
		Express a fraction with denominator 10 as an equivalent fraction with denominator 100. Then, add that fraction to another fraction with denominator 100.	SMMA_LO_02007
5.1.3.2	Model addition and subtraction of fractions and decimals using a variety of representations. For example: Represent $2/3 + 1/4$ and $2/3 + 1/4$ by drawing a rectangle divided into 4 columns and 3 rows and shading the appropriate parts or by using fraction circles or bars.	Using models, add fractions, no simplifying (like denominators, thirds to eighths).	SMMA_LO_00441
		Using models, subtract fractions, no simplifying (like denominators, halves to eighths).	SMMA_LO_00442
		Use a model and an equation to solve word problems involving the addition of fractions with like denominators.	SMMA_LO_02004
		Use a model and an equation to solve word problems involving the subtraction of fractions with like denominators.	SMMA_LO_02016
5.1.3.3	Estimate sums and differences of decimals and fractions to assess the reasonableness of results. For example: Recognize that $122/5 - 33/4$ is between 8 and 9 (since $2/5 < 3/4$).	Estimate the sum or difference in a money problem by rounding to the nearest 10 (two-digit sums and differences).	SMMA_LO_01580
		R: Identify the best estimate of a sum, difference, or product.	SMMA_LO_00231
		R: Estimate the total cost of four items by rounding to the nearest dollar (sums to \$15.00).	SMMA_LO_01591
5.1.3.4	Solve real-world and mathematical problems requiring addition and subtraction of decimals, fractions and mixed numbers, including those involving measurement, geometry and data. For example: Calculate the perimeter of the soccer field when the length is 109.7 meters and the width is 73.1 meters.	Solve an addition problem by finding the total cost of two items (prices expressed as decimals, total < \$0.50, no regrouping).	SMMA_LO_00181
		Add mixed numbers; no simplifying (like denominators, thirds to twelfths).	SMMA_LO_00460
		Subtract mixed numbers; no simplifying (like denominators, thirds to twelfths).	SMMA_LO_00461
		Add mixed numbers; simplify if necessary (like denominators, halves to sixteenths).	SMMA_LO_00463
		Add mixed numbers within a context; simplify if necessary (like denominators).	SMMA_LO_00480
		Subtract mixed numbers in context; simplify if necessary (like denominators).	SMMA_LO_00481
		Subtract mixed numbers; simplify if necessary (like denominators).	SMMA_LO_00485
		Find the perimeter of a polygon (decimal numbers, metric units).	SMMA_LO_00790
		Find the perimeter of a polygon (decimal numbers, metric units).	SMMA_LO_00805

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5.1.3.4	Solve real-world and mathematical problems requiring addition and subtraction of decimals, fractions and mixed numbers, including those involving measurement, geometry and data. For example: Calculate the perimeter of the soccer field when the length is 109.7 meters and the width is 73.1 meters.	Measure the amount of rainfall for the week; then complete the chart and determine the total amount of rainfall for the month.	SMMA_LO_01327
		Solve a decimal subtraction problem in context (tenths, regrouping).	SMMA_LO_01599
		Solve a problem in context that involves adding three amounts expressed as dollars and cents.	SMMA_LO_01608
		Add mixed numbers with like denominators in context; simplify if necessary.	SMMA_LO_01624
		Subtract two fractions from a whole within a context.	SMMA_LO_01634
		Add the decimal numbers provided on a data table.	SMMA_LO_01785
		Subtract the decimal numbers provided on a data table.	SMMA_LO_01786
5.2.1.1	Create and use rules, tables, spreadsheets and graphs to describe patterns of change and solve problems. For example: An end-of-the-year party for 5th grade costs \$100 to rent the room and \$4.50 for each student. Know how to use a spreadsheet to create an input-output table that records the total cost of the party for any number of students between 90 and 150.	Find a missing number in a geometric sequence (first number 1 to 5, factors 2 to 5).	SMMA_LO_01117
		Evaluate an expression within a context (multiplication).	SMMA_LO_01740
		Identify an expression to describe the pattern generated by a table.	SMMA_LO_01741
		Extend an arithmetic sequence for three more terms.	SMMA_LO_01803
5.2.1.2	Use a rule or table to represent ordered pairs of positive integers and graph these ordered pairs on a coordinate system.	Identify a point on a grid given an ordered pair, or identify the ordered pair for a point shown on the grid.	SMMA_LO_01057
		Find the coordinates for a point on a grid.	SMMA_LO_01077
		Identify a point on a coordinate grid given the ordered pair.	SMMA_LO_01092
		Graph a point on a coordinate grid (Quadrant I).	SMMA_LO_01735
		Graph a set of ordered pairs from a table on a coordinate plane (Quadrant I).	SMMA_LO_01808
5.2.2.1	Apply the commutative, associative and distributive properties and order of operations to generate equivalent numerical expressions and to solve problems involving whole numbers. For example: Purchase 5 pencils at 19 cents and 7 erasers at 19 cents. The numerical expression is $5 \times 19 + 7 \times 19$ which is the same as $(5 + 7) \times 19$.	Use the commutative and associative properties of addition to find the missing number.	SMMA_LO_01090

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5.2.3.1	Determine whether an equation or inequality involving a variable is true or false for a given value of the variable. For example: Determine whether the inequality $1.5 + x < 10$ is true for $x = 2.8$, $x = 8.1$, or $x = 9.2$.	Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	SMMA_LO_02061
		R: Identify the written phrase that is a translation of a expression or inequality.	SMMA_LO_01815
		R: Write an inequality of the form $x > c$ or $x < c$ to represent a constraint in a real-world problem.	SMMA_LO_02064
5.2.3.2	Represent real-world situations using equations and inequalities involving variables. Create real-world situations corresponding to equations and inequalities. For example: $250 - 27 \times a = b$ can be used to represent the number of sheets of paper remaining from a packet of 250 sheets when each student in a class of 27 is given a certain number of sheets.	Write an expression to represent a real-world problem, using variables to represent numbers.	SMMA_LO_02062
		Apply mathematical process standards to use equations and represent situations.	SMMA_LO_02140
5.2.3.3	Evaluate expressions and solve equations involving variables when values for the variables are given. For example: Using the formula, $A = \ell w$, determine the area when the length is 5, and the width 6, and find the length when the area is 24 and the width is 4.	Find the area of a rectangle using a formula.	SMMA_LO_00810
		Identify rectangles that have equal areas, but different dimensions.	SMMA_LO_00823
		Given the value for the variable, evaluate an addition expression (sums 4 to 12).	SMMA_LO_01683
		Evaluate an expression with variables using substitution and a value chart (addition, sums to 18).	SMMA_LO_01685
		Evaluate the expression $mx + c$ or $mx - c$.	SMMA_LO_01739
		Write an expression to represent a real-world problem, using variables to represent numbers.	SMMA_LO_02062
5.3.1.1	Describe and classify three-dimensional figures including cubes, prisms and pyramids by the number of edges, faces or vertices as well as the types of faces.	Count the vertices, edges, or faces of a prism or pyramid.	SMMA_LO_00643
		Complete sentences about bases, faces, edges, and vertices of geometric solids.	SMMA_LO_00652
		Identify geometric solids (prisms, pyramids, cones, or spheres).	SMMA_LO_00667
		Classify and sort three-dimensional solids based on attributes using formal geometric language.	SMMA_LO_02138
		R: Identify faces, edges, and vertices of solids.	SMMA_LO_00632
5.3.1.2	Recognize and draw a net for a three-dimensional figure.	Identify the net for a geometric solid.	SMMA_LO_00675
		Identify the net that forms a three-dimensional solid.	SMMA_LO_01772
		R: Identify the set of faces for a geometric solid.	SMMA_LO_00664
5.3.2.1	Develop and use formulas to determine the area of triangles, parallelograms and figures that can be decomposed into triangles.	Find the area of a triangle (2 to 72 square inches).	SMMA_LO_00176
		Find the area of a triangle using a formula.	SMMA_LO_00827
		Use a formula to find the area of a parallelogram.	SMMA_LO_00824

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5.3.2.2	Develop and use the formulas $V = \ell wh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area B and height h are multiplied to find the volume of a rectangular prism by breaking the prism into layers of unit cubes.	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_02044
5.3.2.3	Understand that the volume of a three-dimensional figure can be found by counting the total number of same-sized cubic units that fill a shape without gaps or overlaps. Use cubic units to label volume measurements. For example: Use cubes to find the volume of a small box.	Find the volume of a rectangular solid by counting cubes.	SMMA_LO_00829
		Find the volume of a rectangular solid by counting cubes.	SMMA_LO_00833
		Identify a unit cube and what attribute it is used to measure.	SMMA_LO_02041
		Find the volume of a prism by packing the prism with unit cubes.	SMMA_LO_02042
5.3.2.4	Develop and use the formulas $V = \ell wh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area B and height h are multiplied to find the volume of a rectangular prism by breaking the prism into layers of unit cubes.	Determine the volume of a box given the height, width, and length (60 to 480 customary or metric cubic units).	SMMA_LO_00174
		Compute the volume of right rectangular prisms using formulas.	SMMA_LO_02043
5.4.1.1	Know and use the definitions of the mean, median and range of a set of data. Know how to use a spreadsheet to find the mean, median and range of a data set. Understand that the mean is a "leveling out" of data. For example: The set of numbers 1, 1, 4, 6 has mean 3. It can be leveled by taking one unit from the 4 and three units from the 6 and adding them to the 1s, making four 3s.	Find the average of 3 numbers.	SMMA_LO_00151
		Determine a student's grade point average based on five grades.	SMMA_LO_00179
		Determine the mean of a data set of three to five customary weights or metric masses.	SMMA_LO_00836
		Identify the median of a data set with an odd number of items.	SMMA_LO_01168
		Identify the median of a data set with an even number of items and the two middle values are equal.	SMMA_LO_01169
		Identify the median of a data set with an even number of items and the two middle values are not equal.	SMMA_LO_01170
		Determine the range, mean, median, and mode (one-digit numbers).	SMMA_LO_01210
		Determine the median of a data set.	SMMA_LO_01726
		Determine the mean of a data set.	SMMA_LO_01727
		Determine the range of a set of data.	SMMA_LO_01766
		Determine the median of a set of data.	SMMA_LO_01768
		R: Find the range of a set of data.	SMMA_LO_01166
R: Solve a problem in context by finding the average (mean) of three to seven numbers.	SMMA_LO_01619		
5.4.1.2	Create and analyze double-bar graphs and line graphs by applying understanding of whole numbers, fractions and decimals. Know how to create spreadsheet tables and graphs to display data.	Find the amount of increase or decrease between two points in a line graph.	SMMA_LO_01178
		Read and interpret a line graph.	SMMA_LO_01206
		Interpret a line graph with time and temperature data, and add a point to line graph.	SMMA_LO_01324

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MN Standard	MN Standard Text	Item Description	Item ID
5.4.1.2	Create and analyze double-bar graphs and line graphs by applying understanding of whole numbers, fractions and decimals. Know how to create spreadsheet tables and graphs to display data.	Given the survival needs for a bug, interpret a line graph with time and temperature data.	SMMA_LO_01325
		Create a line graph using data from a table.	SMMA_LO_01697
		Read and interpret a line graph.	SMMA_LO_01764
		Create a line graph.	SMMA_LO_01771
6.1.1.1	Locate positive rational numbers on a number line and plot pairs of positive rational numbers on a coordinate grid.	Find the missing decimal number in a pattern.	SMMA_LO_00253
		Find missing values in a table that represents a proportional relationship, and plot the pairs of values on the coordinate plane.	SMMA_LO_02115
6.1.1.2	Compare positive rational numbers represented in various forms. Use the symbols $<$, $=$ and $>$. For example: $1/2 > 0.36$.	Compare hundredths to multiples of $1/4$.	SMMA_LO_00209
		Compare fractions (unlike denominators).	SMMA_LO_00462
		Compare fractions (unlike denominators).	SMMA_LO_00495
6.1.1.3	Understand that percent represents parts out of 100 and ratios to 100. For example: 75% corresponds to the ratio 75 to 100, which is equivalent to the ratio 3 to 4.	Determine the decimal and percent that is represented by a model (base-ten blocks, hundredths).	SMMA_LO_00256
		Determine the percent (100 total items).	SMMA_LO_01713
		Express a fraction as a percent (denominator is 100).	SMMA_LO_01714
6.1.1.4	Determine equivalences among fractions, decimals and percents; select among these representations to solve problems. For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional \$2.50 an hour, because \$2.50 is $1/10$ or 10% of \$25.	Find an equivalent mixed number for a decimal (tenths to ten thousandths).	SMMA_LO_00255
		Express a percent as a fraction and simplify.	SMMA_LO_00269
		Identify equivalent representations of numbers.	SMMA_LO_01114
		Complete the equivalence table by expressing a decimal number as a fraction and a percent.	SMMA_LO_01820
		Complete the equivalence table by expressing a decimal number as a fraction and a percent (round answer to the nearest hundredth).	SMMA_LO_01821
		Complete the equivalence table by expressing a fraction as a decimal number and a percent (round answer to the nearest hundredth).	SMMA_LO_01822
6.1.1.5	Factor whole numbers; express a whole number as a product of prime factors with exponents. For example: $24 = 2^3 \times 3$	Identify the complete set of factors for a number (2 to 25).	SMMA_LO_01071
		Find the factors of a number and determine if the number is prime or composite (3 to 30).	SMMA_LO_01073
		Using a factor tree, find the prime factors of a number (2 to 32).	SMMA_LO_01087
		Identify the prime factorization of a two-digit number.	SMMA_LO_01093
		Determine three factors of a given number.	SMMA_LO_01107
		R: Identify the number that is divisible by a given factor (numbers 2 to 81, factors 2 to 9).	SMMA_LO_01066

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MN Standard	MN Standard Text	Item Description	Item ID
6.1.1.5	Factor whole numbers; express a whole number as a product of prime factors with exponents. For example: $24 = 2^3 \times 3$	R: Identify numbers that are multiples of a given number.	SMMA_LO_01069
		R: Give the value of a number (1 to 10) raised to a power (1 to 5).	SMMA_LO_01098
		R: Match expressions with repeated factors to numbers in exponential form to create equations.	SMMA_LO_01100
		R: Identify which numbers are divisible by another number (divisors 2 to 10).	SMMA_LO_01101
		R: Identify prime and composite numbers (one- or two-digit).	SMMA_LO_01105
		R: Identify sets of prime and composite numbers.	SMMA_LO_01119
		R: Explain patterns in the number of zeros of the product and in the placement of the decimal point when multiplying a number by powers of ten.	SMMA_LO_02046
6.1.1.6	Determine greatest common factors and least common multiples. Use common factors and common multiples to calculate with fractions and find equivalent fractions. For example: Factor the numerator and denominator of a fraction to determine an equivalent fraction.	Find the missing numerator or denominator in an equivalent fraction (simplified fractions $1/2$ to $3/4$).	SMMA_LO_00451
		Determine if a fraction can be simplified; simplify if possible (simplified fractions $1/2$ to $3/4$).	SMMA_LO_00452
		Find the missing numerator or denominator in an equivalent fraction (simplified fractions $1/2$ to $7/8$).	SMMA_LO_00453
		Determine if a fraction can be simplified; simplify if possible (simplified fractions $1/2$ to $7/8$).	SMMA_LO_00454
		Write a fraction in simplest form (simplified fractions $1/2$ to $7/8$).	SMMA_LO_00455
		Determine if a fraction can be simplified; simplify if possible (simplified fractions $1/2$ to $7/8$).	SMMA_LO_00456
		Find an equivalent fraction of a simplified fraction (simplified fractions $1/2$ to $8/9$).	SMMA_LO_00457
		Find three equivalent fractions (simplified fractions $1/2$ to $8/9$).	SMMA_LO_00458
		Add fractions; no simplifying (unlike denominators).	SMMA_LO_00465
		Subtract fractions; no simplifying (unlike denominators).	SMMA_LO_00466
		Add fractions; no simplifying (unlike denominators).	SMMA_LO_00467
		Subtract fractions; no simplifying (unlike denominators).	SMMA_LO_00468
		Add fractions; simplify if necessary (unlike denominators).	SMMA_LO_00471
		Subtract fractions; simplify if necessary (unlike denominators).	SMMA_LO_00472
		Add fractions; simplify if necessary (unlike denominators).	SMMA_LO_00473
Subtract fractions; simplify if necessary (unlike denominators).	SMMA_LO_00474		

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6.1.1.6	Determine greatest common factors and least common multiples. Use common factors and common multiples to calculate with fractions and find equivalent fractions. For example: Factor the numerator and denominator of a fraction to determine an equivalent fraction.	Add mixed numbers; simplify if necessary (like denominators).	SMMA_LO_00484
		Add mixed numbers; simplify if necessary (unlike denominators).	SMMA_LO_00499
		Subtract mixed numbers; simplify if necessary (unlike denominators).	SMMA_LO_00500
		Identify the fraction that is between two fractions.	SMMA_LO_00503
		Add mixed numbers; simplify if necessary (unlike denominators).	SMMA_LO_00504
		Subtract mixed numbers; simplify if necessary (unlike denominators).	SMMA_LO_00505
		Given the prime factorization of two numbers, find the common multiple.	SMMA_LO_01108
		Find the greatest common factor for two to three numbers.	SMMA_LO_01110
		Find the least common multiple of two or three numbers.	SMMA_LO_01112
		Generate a table of equivalent fractions for a fraction in simplest form.	SMMA_LO_01791
		Generate a table of equivalent fractions for a fraction not in simplest form.	SMMA_LO_01792
		Identify the fraction equivalent to the given fraction.	SMMA_LO_01793
		R: Determine the least common denominator of two fractions.	SMMA_LO_00493
		R: Determine the equivalent fractions using the least common denominator of two given fractions.	SMMA_LO_00494
		R: Identify a common factor of two numbers (4 to 81).	SMMA_LO_01088
R: Identify the common multiples for two to three numbers (2 to 20).	SMMA_LO_01096		
6.1.1.7	Convert between equivalent representations of positive rational numbers. For example: Express $10/7$ as $(7 + 3)/7 = 7/7 + 3/7 = 13/7$.	Using a model, rewrite a whole number as a fraction (halves to eighths).	SMMA_LO_00443
		Using a model, rewrite a mixed number as a fraction (halves to eighths).	SMMA_LO_00446
		Rewrite a mixed number as a fraction (fifths to ninths).	SMMA_LO_00450
6.1.2.1	Identify and use ratios to compare quantities; understand that comparing quantities using ratios is not the same as comparing quantities using subtraction. For example: In a classroom with 15 boys and 10 girls, compare the numbers by subtracting (there are 5 more boys than girls) or by dividing (there are 1.5 times as many boys as girls). The comparison using division may be expressed as a ratio of boys to girls (3 to 2 or 3:2 or 1.5 to 1).	Identify the ratio.	SMMA_LO_01712
		Write a ratio in three different forms.	SMMA_LO_01825

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6.1.2.2	Apply the relationship between ratios, equivalent fractions and percents to solve problems in various contexts, including those involving mixtures and concentrations. For example: If 5 cups of trail mix contains 2 cups of raisins, the ratio of raisins to trail mix is 2 to 5. This ratio corresponds to the fact that the raisins are $\frac{2}{5}$ of the total, or 40% of the total. And if one trail mix consists of 2 parts peanuts to 3 parts raisins, and another consists of 4 parts peanuts to 8 parts raisins, then the first mixture has a higher concentration of peanuts.	Solve a proportion problem in context.	SMMA_LO_01284
		Find the amount of an ingredient needed to make two, three, or four times a recipe.	SMMA_LO_01627
		Find missing values in a table that represents a proportional relationship, and plot the pairs of values on the coordinate plane.	SMMA_LO_02115
6.1.2.3	Determine the rate for ratios of quantities with different units. For example: 60 miles for every 3 hours is equivalent to 20 miles for every one hour (20 mph).	Find the unit price of an item (products 2×6 to 25×32).	SMMA_LO_00830
		Interpret quotients of rational numbers by describing real-world contexts.	SMMA_LO_02088
6.1.2.4	Use reasoning about multiplication and division to solve ratio and rate problems. For example: If 5 items cost \$3.75, and all items are the same price, then 1 item costs 75 cents, so 12 items cost \$9.00.	Solve time and distance problems (whole numbers).	SMMA_LO_00842
		Solve a proportion problem in context.	SMMA_LO_01284
		Given the rate and time, find the distance.	SMMA_LO_01575
		Find the number of hours worked given the hourly rate and total earned.	SMMA_LO_01625
		Find the amount of an ingredient needed to make two, three, or four times a recipe.	SMMA_LO_01627
		Find the total money earned, given the number of hours worked and the hourly rate.	SMMA_LO_01630
		Solve a problem in context using proportions.	SMMA_LO_01635
		Find missing values in a table that represents a proportional relationship, and plot the pairs of values on the coordinate plane.	SMMA_LO_02115
6.1.3.1	Multiply and divide decimals and fractions, using efficient and generalizable procedures, including standard algorithms.	Complete a comparison statement based on the ratios in two tables.	SMMA_LO_02116
		Find the missing factor and quotient in two related number sentences (products 0.2×2 to 0.9×5).	SMMA_LO_00219
		Find the missing decimal number on a number line; then count by multiples of tenths to find the product.	SMMA_LO_00220
		Multiply a decimal and a whole number displayed horizontally (0.02×2 to 0.09×5).	SMMA_LO_00221
		Multiply two decimals or multiply a decimal by a whole number (tenths to hundredths).	SMMA_LO_00223
Multiply decimals displayed horizontally (0.2×0.6 to 0.9×0.12).	SMMA_LO_00232		

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6.1.3.1	Multiply and divide decimals and fractions, using efficient and generalizable procedures, including standard algorithms.	Multiply decimals (to thousandths x hundredths).	SMMA_LO_00234
		Multiply decimals by 10, 100, or 1000.	SMMA_LO_00235
		Divide a decimal by a decimal (horizontal division; dividends to tenths).	SMMA_LO_00237
		Divide a decimal by a whole number.	SMMA_LO_00239
		Determine the missing factor in the multiplication number sentence (decimals, to ten-thousandths).	SMMA_LO_00240
		Multiply decimals (to ten-thousandths x ten-thousandths).	SMMA_LO_00244
		Divide decimals (0.3 x 0.3 to 0.9 x 0.09).	SMMA_LO_00245
		Move the decimal point in the divisor and dividend in a long division problem.	SMMA_LO_00247
		Divide a decimal by a whole number.	SMMA_LO_00248
		Move the decimal point in the divisor and dividend in a long division problem; then find the quotient.	SMMA_LO_00249
		Divide decimals (0 x 2 to 2 x 5).	SMMA_LO_00251
		Multiply a whole number or a decimal by 0.1, 0.01, or 0.001.	SMMA_LO_00252
		Divide a decimal by 0.1, 0.01, or 0.001.	SMMA_LO_00263
		Divide a decimal by 0.1, 0.01, or 0.001 (dividends 0.001 to 0.999).	SMMA_LO_00267
		Multiply fractions; no simplifying.	SMMA_LO_00469
		Multiply a whole number by a proper fraction; no simplifying.	SMMA_LO_00470
		Multiply fractions; simplify.	SMMA_LO_00475
		Multiply fractions; simplify first.	SMMA_LO_00476
		Multiply a fraction and a whole number; simplify.	SMMA_LO_00477
		Multiply a fraction and a whole number; simplify first.	SMMA_LO_00478
		Divide fractions; simplify if necessary.	SMMA_LO_00487
		Divide a fraction by a mixed number; simplify if necessary.	SMMA_LO_00491
		Divide a whole number by a fraction.	SMMA_LO_00492
		Find a fractional part of a fraction.	SMMA_LO_00498
		Multiply mixed numbers; simplify if necessary.	SMMA_LO_00501
		Multiply three fractions; simplify if necessary.	SMMA_LO_00506
		Multiply mixed numbers to determine the area of a rectangle or triangle; simplify if necessary.	SMMA_LO_00508
		Divide a fraction by a fraction; simplify if necessary.	SMMA_LO_01788
		Divide a mixed number by a fraction; simplify if necessary.	SMMA_LO_01789
		Divide a mixed number by a mixed number; simplify if necessary.	SMMA_LO_01790

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6.1.3.1	Multiply and divide decimals and fractions, using efficient and generalizable procedures, including standard algorithms.	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_02048
		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.	SMMA_LO_02049
		R: Identify the location of the decimal point of the product of two decimals (factors, tenths to hundredths).	SMMA_LO_00222
		R: Identify the probable error in a multiplication calculation with decimals.	SMMA_LO_00250
		R: Determine the sale price of an item when the price is reduced by one-half, one-third, or one-fourth.	SMMA_LO_01285
6.1.3.2	Use the meanings of fractions, multiplication, division and the inverse relationship between multiplication and division to make sense of procedures for multiplying and dividing fractions. For example: Just as $12/4 = 3$ means $12 = 3 \times 4$, $2/3 \div 4/5 = 5/6$ means $5/6 \times 4/5 = 2/3$.	Divide a fraction by a whole number; simplify if necessary.	SMMA_LO_00489
		Divide a mixed number by a whole number; simplify if necessary.	SMMA_LO_00502
		Identify the equivalent expression for a fraction, whole number, or a mixed numbers being divided by a fraction, a whole number, or a mixed number.	SMMA_LO_00511
		Divide fractions; simplify.	SMMA_LO_00512
		Divide a whole number by a fraction; simplify if necessary.	SMMA_LO_01787
		Model the division of a unit fraction by a nonzero whole number, and compute the quotient.	SMMA_LO_02052
		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.	SMMA_LO_02054
6.1.3.3	Calculate the percent of a number and determine what percent one number is of another number to solve problems in various contexts. For example: If John has \$45 and spends \$15, what percent of his money did he keep?	Find a percent of a money amount (\$0.80 to \$10.80).	SMMA_LO_00270
		Find a percent of a number (the percent is greater than or equal to 100).	SMMA_LO_00275
		Find the percent given the whole and the part.	SMMA_LO_00276
		Find the whole given the percent and the part.	SMMA_LO_00277
6.1.3.4	Solve real-world and mathematical problems requiring arithmetic with decimals, fractions and mixed numbers.	Determine the value of a combination of nickels, dimes, and quarters (values to \$5.00).	SMMA_LO_00165
		Add mixed numbers within a context; simplify if necessary (unlike denominators).	SMMA_LO_00509
		Subtract mixed numbers within a context; simplify if necessary (unlike denominators).	SMMA_LO_00510
		Find the fractional part of a recipe (multiply a fraction and a mixed number).	SMMA_LO_00835

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6.1.3.4	Solve real-world and mathematical problems requiring arithmetic with decimals, fractions and mixed numbers.	Solve a division problem about money with extra information (round quotient to the nearest whole number).	SMMA_LO_01585
		Find the change from one dollar for two to four items (each 10, 15, or 20 cents).	SMMA_LO_01609
		Find the number of grams that represents a percentage of the total weight (whole numbers).	SMMA_LO_01636
		Add two fractional parts of whole numbers in context.	SMMA_LO_01640
		Use addition to find an equivalent fraction for $\frac{1}{2}$.	SMMA_LO_01706
		Estimate the difference of two fractions.	SMMA_LO_01707
		Identify the rule for an iterative pattern.	SMMA_LO_01840
		Model a division word problem that results in a rational quotient; then express the word problem with an equation.	SMMA_LO_02047
		Use models to solve real-world problems involving division of unit fractions by nonzero whole numbers and division of whole numbers by unit fractions.	SMMA_LO_02053
		Use models to solve real-world problems involving division of unit fractions by nonzero whole numbers.	SMMA_LO_02156
		6.1.3.5	Estimate solutions to problems with whole numbers, fractions and decimals and use the estimates to assess the reasonableness of results in the context of the problem. For example: The sum $\frac{1}{3} + 0.25$ can be estimated to be between $\frac{1}{2}$ and 1, and this estimate can be used to check the result of a more detailed calculation.
Identify the most reasonable answer to a multiplication problem involving money.	SMMA_LO_01278		
Identify the most reasonable answer to a division problem involving money.	SMMA_LO_01279		
Find the number of dollar bills needed to buy two to four items (each \$1.79 to \$3.99 each).	SMMA_LO_01629		
Determine whether multiplying a number by a factor results in scaling the number up or down.	SMMA_LO_02050		
Determine whether multiplying a number by a factor results in scaling the number up or down.	SMMA_LO_02051		
R: Identify the best estimate for a quotient (decimal divided by a whole number).	SMMA_LO_00238		
R: Estimate the sum, product, or quotient in problems with fractions.	SMMA_LO_01095		
R: Identify the best estimate for a quotient or a product using compatible numbers (factors less than 10 with two to four decimal places, divisors less than 10 with two to three decimal places).	SMMA_LO_01123		

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6.2.1.1	Understand that a variable can be used to represent a quantity that can change, often in relationship to another changing quantity. Use variables in various contexts. For example: If a student earns \$7 an hour in a job, the amount of money earned can be represented by a variable and is related to the number of hours worked, which also can be represented by a variable.	Identify the expression that is a translation of the written phrase.	SMMA_LO_01759
		Write expressions that record operations with numbers and variables.	SMMA_LO_02056
6.2.1.2	Represent the relationship between two varying quantities with function rules, graphs and tables; translate between any two of these representations. For example: Describe the terms in the sequence of perfect squares $t = 1, 4, 9, 16, \dots$ by using the rule $t = n^2$ for $n = 1, 2, 3, 4, \dots$	Identify the addition or subtraction rule of the function.	SMMA_LO_01682
		Identify the multiplication or division rule of the function.	SMMA_LO_01684
		Identify the one-step rule in the relation or function (multiplication and division).	SMMA_LO_01723
		Generate a table of values given a rule.	SMMA_LO_01724
		Complete a table given a two-step rule (single-digit whole numbers).	SMMA_LO_01750
		Complete a table given a two-step rule (whole numbers).	SMMA_LO_01751
		Generate a table of values given a one-step rule.	SMMA_LO_01755
		Generate a table of values given a two-step rule.	SMMA_LO_01756
6.2.2.1	Apply the associative, commutative and distributive properties and order of operations to generate equivalent expressions and to solve problems involving positive rational numbers. For example: $32/15 \times 5/6 = 32 \times 5 / 15 \times 6 = 2 \times 16 \times 5 / 3 \times 5 \times 3 \times 2 = 16/9 \times 2/2 \times 5/5 = 16/9$ Another example: Use the distributive law to write: $1/2 + 1/3(9/2 - 15/8) = 1/2 + 1/3 \times 9/2 - 1/3 \times 15/8 = 1/2 + 3/2 - 5/8 = 2 - 5/8 = 1 3/8$	Solve for a variable in the formula for volume of a rectangular prism (whole numbers and mixed numbers).	SMMA_LO_01817
		Write an inequality of the form $x > c$ or $x < c$ to represent a constraint in a real-world problem. Then represent the solution on a number line.	SMMA_LO_02065
6.2.3.1	Represent real-world or mathematical situations using equations and inequalities involving variables and positive rational numbers. For example: The number of miles m in a k kilometer race is represented by the equation $m = 0.62k$.		

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6.2.3.2	Solve equations involving positive rational numbers using number sense, properties of arithmetic and the idea of maintaining equality on both sides of the equation. Interpret a solution in the original context and assess the reasonableness of results. For example: A cellular phone company charges \$0.12 per minute. If the bill was \$11.40 in April, how many minutes were used?	Solve for a or c in $a/b + c/b = d/b$ (sums $2/3$ to $11/12$).	SMMA_LO_00356
		Solve for a or b in $a \div b = c$ (combinations $2 \div 10$ to $5 \div 12$).	SMMA_LO_00359
		Solve for a or c in $(a/b - c/b = d/b)$ (minuends $2/3$ to $11/12$).	SMMA_LO_00360
		Solve for a or b in $a \div b = c$ (combinations $6 \div 10$ to $9 \div 12$).	SMMA_LO_00361
		Solve for a or c in $a/b - c/b = d/b$ (improper fractions, minuends $4/3$ to $35/12$).	SMMA_LO_00362
		Solve for a or c in $a/b + c/b = d/b$ (improper fractions, sums $4/3$ to $35/12$).	SMMA_LO_00364
		Solve for a or b in $a \div b = c$ (combinations $6 \div 20$ to $9 \div 90$, multiples of 10).	SMMA_LO_00365
		Solve for a or b in $a + b = c$ (decimals to tenths, no regrouping).	SMMA_LO_00367
		Solve for a or b in $a - b = c$ (decimals to tenths, regrouping).	SMMA_LO_00368
		Solve for a or b in $a \times b = c$ (products from 0.2×0.6 to 0.9×0.9).	SMMA_LO_00369
		Solve for a or b in $a \div b = c$ (combinations 0.6×0.6 to 0.9×0.9).	SMMA_LO_00370
		Solve for a, b, or c in $a \times b/c = d/e$ (combinations to 12×12).	SMMA_LO_00371
		Solve for a, b, c, or d in $a/b \times c/d = e/f$ (combinations to 12×12).	SMMA_LO_00372
		Solve for a or b in $a + b = c$ (decimals to hundredths).	SMMA_LO_00373
		Solve for a or b in $a - b = c$ (decimals to hundredths, regrouping).	SMMA_LO_00374
		Solve for a, b, or c in $a/b \div c = d/e$ (combinations to 12×12).	SMMA_LO_00375
		Solve for a or b in $a \times b = c$ (products from 0.02×0.13 to 0.09×0.19).	SMMA_LO_00376
		Solve for a, b, c, or d in $a/b \div c/d = e/f$.	SMMA_LO_00377
		Solve for a or b in $a \div b = c$ (combinations from 0.01 to 0.02 to 0.05×0.05).	SMMA_LO_00378
		Solve for a in $a + b = c$ or $a - b = c$ in steps (whole number sums and differences 2 to 20).	SMMA_LO_00379
Solve for x in $ax = c$ in steps (products 4×4 to 9×10).	SMMA_LO_00380		
Complete the steps to solve for a in $a \div b = c$ (combinations 4×4 to 9×10).	SMMA_LO_00381		
Complete the steps to solve for x in $ax \div b = c$ in steps.	SMMA_LO_00382		
Solve one-step equations (multiplication, fractions).	SMMA_LO_01795		
Solve one-step equations (subtraction fractions).	SMMA_LO_01796		

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MN Standard	MN Standard Text	Item Description	Item ID
6.2.3.2	Solve equations involving positive rational numbers using number sense, properties of arithmetic and the idea of maintaining equality on both sides of the equation. Interpret a solution in the original context and assess the reasonableness of results. For example: A cellular phone company charges \$0.12 per minute. If the bill was \$11.40 in April, how many minutes were used?	Solve a one-step equation (multiplication, decimals).	SMMA_LO_01797
		Solve for a, b, or c in $a \times b/c = d/e$ (combinations to 12×12).	SMMA_LO_01798
		Solve a one-step equation with decimals in context (addition and subtraction).	SMMA_LO_01799
		Solve a one-step equation (fractions, multiplication and division).	SMMA_LO_01847
		Solve a one-step equations (fractions, addition and subtraction).	SMMA_LO_01868
6.3.1.1	Solve problems in various contexts involving conversion of weights, capacities, geometric measurements and times within measurement systems using appropriate units.	Convert customary units of length (inches, feet, and yards).	SMMA_LO_00791
		Convert metric units of length (mm, cm, m, and km; whole numbers).	SMMA_LO_00814
		Find the volume of a rectangular or triangular prism.	SMMA_LO_00838
		Choose the best estimate for the volume of a rectangular prism.	SMMA_LO_00848
		Calculate the volume of a rectangular prism; then convert the cubic feet or cubic meters into gallons or liters.	SMMA_LO_01819
		R: Determine if the perimeter, area, or volume is needed to solve the problem.	SMMA_LO_00826
6.3.1.2	Calculate the area of quadrilaterals. Quadrilaterals include squares, rectangles, rhombuses, parallelograms, trapezoids and kites. When formulas are used, be able to explain why they are valid. For example: The area of a kite is one-half the product of the lengths of the diagonals, and this can be justified by decomposing the kite into two triangles.	Use a formula to find the area of a parallelogram.	SMMA_LO_00824
		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.	SMMA_LO_02049
		R: Determine if the perimeter, area, or volume is needed to solve the problem.	SMMA_LO_00826
6.3.1.3	Estimate the perimeter and area of irregular figures on a grid when they cannot be decomposed into common figures and use correct units, such as cm and cm^2 .	Estimate the area of a figure on a grid (3 to 11 square units).	SMMA_LO_00808
		R: Determine if the perimeter, area, or volume is needed to solve the problem.	SMMA_LO_00826
6.3.2.1	Solve problems using the relationships between the angles formed by intersecting lines. For example: If two streets cross, forming four corners such that one of the corners forms an angle of 120° , determine the measures of the remaining three angles. Another example: Recognize that pairs of interior and exterior angles in polygons have measures that sum to 180° .	Establish that vertical angles are congruent.	SMMA_LO_00670

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6.3.2.2	Determine missing angle measures in a triangle using the fact that the sum of the interior angles of a triangle is 180° . Use models of triangles to illustrate this fact. For example: Cut a triangle out of paper, tear off the corners and rearrange these corners to form a straight line. Another example: Recognize that the measures of the two acute angles in a right triangle sum to 90° .	Solve a problem involving equal angle measures.	SMMA_LO_00677
6.3.2.3	Develop and use formulas for the sums of the interior angles of polygons by decomposing them into triangles.	Solve a problem involving equal angle measures.	SMMA_LO_00677
6.3.3.1	Solve problems in various contexts involving conversion of weights, capacities, geometric measurements and times within measurement systems using appropriate units.	Express yards and feet as an equivalent number of feet, or feet and inches as an equivalent number of inches.	SMMA_LO_00166
		Add metric measurements with unlike units and express the sum in terms of the smaller unit.	SMMA_LO_00168
		Add metric measurements with unlike units and express the sum in terms of the larger unit.	SMMA_LO_00172
		Compare unlike customary units of length (inches, feet, and yards).	SMMA_LO_00792
		Convert customary units of capacity (cups, pints, quarts, and gallons).	SMMA_LO_00796
		Convert between customary units of weight (ounces and pounds).	SMMA_LO_00797
		Compare unlike customary units of capacity (cups, pints, quarts, and gallons).	SMMA_LO_00799
		Compare unlike customary units of weight and identify the correct statement (ounces and pounds).	SMMA_LO_00801
		Compare unlike metric units and identify the correct statement (mm, cm, m, km; mL, L; mg, g, kg).	SMMA_LO_00820
Convert units of time (seconds, minutes, hours, days, weeks, months, and years).	SMMA_LO_00837		
6.3.3.2	Estimate weights, capacities and geometric measurements using benchmarks in measurement systems with appropriate units. For example: Estimate the height of a house by comparing to a 6-foot man standing nearby.	Identify the reasonable weight of an object (ounces, pounds, and tons).	SMMA_LO_00787
		Identify the reasonable customary capacity of an object (cups, pints, quarts, and gallons).	SMMA_LO_00794
		Identify the reasonable length, width, or height of an object (millimeters, centimeters, and meters).	SMMA_LO_00803
		Identify the reasonable mass for an object (grams and kilograms).	SMMA_LO_00807
		Identify the reasonable capacity of an object (milliliters and liters).	SMMA_LO_00811

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MN Standard	MN Standard Text	Item Description	Item ID
6.3.3.2	Estimate weights, capacities and geometric measurements using benchmarks in measurement systems with appropriate units. For example: Estimate the height of a house by comparing to a 6-foot man standing nearby.	Choose the appropriate customary units of liquid measure (cups, quarts, and gallons).	SMMA_LO_01674
		Identify distances or objects that would be measured in cm, m, or km.	SMMA_LO_01703
		Identify the appropriate unit of measure (l, kl, g, kg, m, km).	SMMA_LO_01704
		Identify the appropriate unit of weight.	SMMA_LO_01730
		Choose the appropriate unit of capacity (ounce, cup, pint, quart, and gallon).	SMMA_LO_01864
		R: Select the appropriate standard unit of measurement for length, capacity, and weight (customary).	SMMA_LO_00729
		R: Add nonstandard units of capacity (sums 2 to 8).	SMMA_LO_00739
		R: Subtract nonstandard units of capacity (differences 0 to 3).	SMMA_LO_00742
		R: Find the capacity of a container (3 to 10 nonstandard units).	SMMA_LO_00754
		R: Add units of capacity (pints, sums 2 to 6).	SMMA_LO_00764
		R: Select the appropriate standard unit of measurement for length, capacity, and weight (metric).	SMMA_LO_00767
		R: Read weights from a chart; choose two weights that equal a given total (sums to 1,500).	SMMA_LO_01301
6.4.1.1	Determine the sample space (set of possible outcomes) for a given experiment and determine which members of the sample space are related to certain events. Sample space may be determined by the use of tree diagrams, tables or pictorial representations. For example: A 6x6 table with entries such as (1,1), (1,2), (1,3), ..., (6,6) can be used to represent the sample space for the experiment of simultaneously rolling two number cubes.	Given a graphical representation of a spinner, count the number of possible outcomes and complete a list of all the outcomes.	SMMA_LO_01209
		Given a graphical representation of two spinners, count all the possible outcomes for spinning each spinner once.	SMMA_LO_01665
		R: Given a coordinate grid to represent outcomes of tossing a pair of number cubes, identify the point that represents a given pair of outcomes.	SMMA_LO_01218
6.4.1.2	Determine the probability of an event using the ratio between the size of the event and the size of the sample space; represent probabilities as percents, fractions and decimals between 0 and 1 inclusive. Understand that probabilities measure likelihood. For example: Each outcome for a balanced number cube has probability 1/6, and the probability of rolling an even number is 1/2.	Determine whether a chronological event is certain or impossible.	SMMA_LO_01137
		Given information about a current situation, classify a future event as being certain, possible, or impossible.	SMMA_LO_01139
		Within the context of repeated selections without replacement from a bag containing two balls of the same color, label events as certain or impossible.	SMMA_LO_01141
		Given a sentence describing an observed event, label a future occurrence as certain, possible, or impossible.	SMMA_LO_01143

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6.4.1.2	<p>Determine the probability of an event using the ratio between the size of the event and the size of the sample space; represent probabilities as percents, fractions and decimals between 0 and 1 inclusive.</p> <p>Understand that probabilities measure likelihood.</p> <p>For example: Each outcome for a balanced number cube has probability $1/6$, and the probability of rolling an even number is $1/2$.</p>	Within the context of selecting without replacement from a cup containing three balls, each of a different color, label a given event prior to each selection as certain, possible, or impossible.	SMMA_LO_01147
		Create a set of colored balls whose contents are specified by whether it is certain, possible, or impossible to select a particular color.	SMMA_LO_01153
		Given a graphical representation of an urn containing balls of three colors, determine qualitatively which event is more probable to occur (5 to 8 times as many balls of one color as of the other color).	SMMA_LO_01157
		Given a graphical representation of an urn containing balls of two colors, determine qualitatively which color is more probable to be randomly selected (2 to 4 times as many balls of one color as of the other color).	SMMA_LO_01159
		Using a graphical representation of an urn and a set of balls of two colors, modify a random experiment so that the qualitative probability of getting one color is greater than that of getting the other color.	SMMA_LO_01161
		Given the graphical representation of a bowl containing marbles of two colors, represent on a qualitative ordinal scale the probability of an event (6 to 11 marbles in the bowl).	SMMA_LO_01165
		Given a graphical representation of a bowl containing marbles of two colors, represent on a qualitative ordinal scale the probability of an event and its complement.	SMMA_LO_01171
		Given a graphical representation of two urns containing different compositions of balls of two colors, select the urn in which an event is qualitatively determined to have a high probability.	SMMA_LO_01173
		Express an event as a ratio of the number of favorable outcomes to the total number of outcomes (bowl containing marbles of two colors).	SMMA_LO_01179
		Determine the probability of an event.	SMMA_LO_01197
Given a random experiment represented graphically by a spinner, prepare an equivalent random experiment using a representation based on an urn and colored balls.	SMMA_LO_01200		

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6.4.1.2	<p>Determine the probability of an event using the ratio between the size of the event and the size of the sample space; represent probabilities as percents, fractions and decimals between 0 and 1 inclusive.</p> <p>Understand that probabilities measure likelihood.</p> <p>For example: Each outcome for a balanced number cube has probability $1/6$, and the probability of rolling an even number is $1/2$.</p>	Using a graphical representation of a bowl containing marbles of four colors, begin to apply the addition rule for computing the probabilities of inclusive classes using light and dark colored marbles.	SMMA_LO_01203
		In the context of randomly selecting a card that has one of two pictures on it, compute the probability of each picture being selected from a set of cards (total of 4 to 7 cards).	SMMA_LO_01211
		In the context of randomly selecting a card that has a certain name on it, compute the probability of each name being selected from a set of cards.	SMMA_LO_01215
		R: Given a graphical representation of an urn containing balls of three colors, determine qualitatively which event is more probable to occur.	SMMA_LO_01163
		R: Given a coordinate grid to represent outcomes of tossing a pair of number cubes, identify all points that represent the sum given for a pair of outcomes.	SMMA_LO_01219
6.4.1.3	<p>Perform experiments for situations in which the probabilities are known, compare the resulting relative frequencies with the known probabilities; know that there may be differences.</p> <p>For example: Heads and tails are equally likely when flipping a fair coin, but if several different students flipped fair coins 10 times, it is likely that they will find a variety of relative frequencies of heads and tails.</p>	Determine the event that is most or least likely; then conduct a simulation in which the results are recorded so that theoretical and experimental probability can be compared.	SMMA_LO_01738
6.4.1.4	<p>Calculate experimental probabilities from experiments; represent them as percents, fractions and decimals between 0 and 1 inclusive. Use experimental probabilities to make predictions when actual probabilities are unknown.</p> <p>For example: Repeatedly draw colored chips with replacement from a bag with an unknown mixture of chips, record relative frequencies, and use the results to make predictions about the contents of the bag.</p>	Make predictions based on a sample.	SMMA_LO_01223

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7.1.1.1	Know that every rational number can be written as the ratio of two integers or as a terminating or repeating decimal. Recognize that π is not rational, but that it can be approximated by rational numbers such as $22/7$ and 3.14 .	Divide to convert from a fraction to a decimal equivalent.	SMMA_LO_00258
7.1.1.3	Locate positive and negative rational numbers on a number line, understand the concept of opposites, and plot pairs of positive and negative rational numbers on a coordinate grid.	Locate the missing integer on a number line (-3 to -12).	SMMA_LO_00101
		Find the missing one-digit addend in a number sentence (positive or negative integers, sums are 0).	SMMA_LO_00102
		Find the missing two-digit addend in a number sentence (sums are 0).	SMMA_LO_00103
		Find the missing two-digit addend in a number sentence (sums are 0).	SMMA_LO_00104
		Evaluate $-(a + b)$, where $9 < a < 19$, $1 < b < 9$.	SMMA_LO_00127
		Evaluate $-(a + b)$, where $1 < a$, $b < 9$.	SMMA_LO_00128
		Read the temperature on a thermometer to nearest degree (-10 to 10 degrees).	SMMA_LO_00804
		Evaluate the expression $-(-a)$, where a has values 1 to 99.	SMMA_LO_01518
		Complete an input/output table given a two-step rule; then plot the ordered pairs on coordinate grid.	SMMA_LO_01758
		Graph a set of ordered pairs from a table on a coordinate plane.	SMMA_LO_01809
		Graph a set of ordered pairs from a table on a coordinate plane.	SMMA_LO_01810
		Use positive and negative numbers together to represent quantities having opposite directions or values.	SMMA_LO_02066
		Describe situations that can be represented by opposite quantities.	SMMA_LO_02086
		Graph points on a coordinate plane based on a real-world context.	SMMA_LO_02112
		R: Read and interpret data in a table to determine the time it would take for skin to freeze.	SMMA_LO_01314
R: Read and interpret data in a table to determine the time it would take for skin to freeze.	SMMA_LO_01315		
7.1.1.4	Compare positive and negative rational numbers expressed in various forms using the symbols $<$, $>$, $=$, \leq , \geq . For example: $-1/2 < -.36$.	Compare two expressions using the additive inverse property.	SMMA_LO_00120
		Determine the least or greatest integer (-10 to 10).	SMMA_LO_01102
		Compare sums and difference of positive and negative integers (-5 to 5).	SMMA_LO_01528
		Compare rational numbers in real-world contexts.	SMMA_LO_02109
		Complete statements of order for rational numbers in real-world contexts.	SMMA_LO_02110

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7.1.1.5	Recognize and generate equivalent representations of positive and negative rational numbers, including equivalent fractions. For example: $-40/12 = -120/36 = -10/3 = 3.3\dots$	Divide to convert from a fraction to a decimal equivalent.	SMMA_LO_00258
		Identify fractions that are equivalent to a given negative fraction.	SMMA_LO_02087
		R: Identify the division problem that can be used to rewrite a fraction as a decimal.	SMMA_LO_00257
7.1.2.1	Add, subtract, multiply and divide positive and negative rational numbers that are integers, fractions and terminating decimals; use efficient and generalizable procedures, including standard algorithms; raise positive rational numbers to whole-number exponents. For example: $3^4 \times (1/2)^2 = 81/4$.	Find the missing negative addend in a number sentence (sums 1 to 8).	SMMA_LO_00105
		Add two negative integers (sums -20 to 0).	SMMA_LO_00107
		Add a positive and a negative integer (one digit addends, sums -9 to 9).	SMMA_LO_00108
		Add two integers using addition facts (addends -10 to 10, sums -20 to 20).	SMMA_LO_00109
		Find the missing addend in a number sentence (missing addends -10 to 10, sums -20 to 20).	SMMA_LO_00110
		Add three integers (sum -10 to 10).	SMMA_LO_00111
		Add integers in an associative expression $((a + b) + c$, three addends -10 to 10).	SMMA_LO_00113
		Find the sum of four integers when two are additive inverses (a, b, c, and d have absolute values 1 to 20).	SMMA_LO_00119
		Add two integers (-20 to 20).	SMMA_LO_00121
		Find the missing addend in a number sentence (sums -20 to 20).	SMMA_LO_00122
		Find the missing addend in a number sentence (three addends, -10 to 10).	SMMA_LO_00123
		Evaluate $-(-a + b)$, where $1 < a, b < 9$.	SMMA_LO_00128
		Divide integers (combinations 6×10 to -9×12 , dividend or divisor is negative).	SMMA_LO_00316
		Divide integers (combinations 4×6 to 12×12).	SMMA_LO_00317
		Divide integers (combinations 6×13 to 9×19 , all signs).	SMMA_LO_00319
		Find the missing dividend or divisor in a number sentence (combinations 7×13 to 9×19 , all signs).	SMMA_LO_00320
		Multiply a negative integer by a positive integer (products -144 to -4).	SMMA_LO_00914
		Multiply two negative integers (products 4 to 144).	SMMA_LO_00915
		Multiply a negative integer by a positive integer (products $-(20 \times 2)$ to $-(90 \times 9)$).	SMMA_LO_00917
		Find the missing positive or negative factor in a number sentence.	SMMA_LO_00918
Multiply three integers (one-digit factors with absolute values 2 to 10).	SMMA_LO_00920		
Find a missing number in an arithmetic sequence (-200 to 200, intervals 3 to 8).	SMMA_LO_01115		
Locate an integer on the number line (differences -5 to 1).	SMMA_LO_01505		

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7.1.2.1	Add, subtract, multiply and divide positive and negative rational numbers that are integers, fractions and terminating decimals; use efficient and generalizable procedures, including standard algorithms; raise positive rational numbers to whole-number exponents. For example: $3^4 \times (1/2)^2 = 81/4$.	Subtract integers (minuends 0 to 10, subtrahends 1 to 10, differences negative).	SMMA_LO_01506
		Subtract integers (minuends 0 to 19, subtrahends 1 to 20, negative differences).	SMMA_LO_01507
		Subtract integers (minuends 0 to 19, subtrahends 1 to 20, negative differences).	SMMA_LO_01508
		Find the missing subtrahend in a number sentence (minuends 0 to 10, subtrahends 2 to 11, negative differences).	SMMA_LO_01509
		Subtract integers (minuends 0 to 20, subtrahends 1 to 40).	SMMA_LO_01510
		Subtract integers using a number line.	SMMA_LO_01511
		Find the missing subtrahend in a number sentence (minuends -9 to 0, differences -9 to 0).	SMMA_LO_01512
		Subtract integers (minuends -20 to -10, subtrahends 0 to 10).	SMMA_LO_01513
		Subtract integers (minuends -20 to 20, subtrahends 0 to -20).	SMMA_LO_01516
		Subtract an integer from 0 (subtrahends -20 to 20).	SMMA_LO_01519
		Subtract integers (minuends 0 to 20, subtrahends -10 to -1).	SMMA_LO_01520
		Subtract integers (minuends -10 to 0, subtrahends -10 to -1).	SMMA_LO_01522
		Subtract integers (minuends -10 to 10, subtrahends -10 to 10).	SMMA_LO_01525
		Subtract integers (minuends -20 to 20, subtrahends -20 to 20).	SMMA_LO_01526
		Evaluate a numerical expression $(a) + (b) - (c)$, where a, b, and c have values from -9 to 9.	SMMA_LO_01527
		Compare sums and difference of positive and negative integers (-5 to 5).	SMMA_LO_01528
		Evaluate the expression $-(a - b)$, where a and b have values from 1 to 9.	SMMA_LO_01531
		Evaluate the expression $-(-a - b)$, where a and b have values from 1 to 9.	SMMA_LO_01532
		R: Determine if the sum is positive or negative (one- and two-digit addends).	SMMA_LO_00106
		R: Determine the sign of the products of two integers (one and two-digit integers).	SMMA_LO_00916
R: Determine the sign of the product of four factors.	SMMA_LO_00919		
R: Represent addition and subtraction of rational numbers on a number line.	SMMA_LO_02085		

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MN Standard	MN Standard Text	Item Description	Item ID
7.1.2.1	Add, subtract, multiply and divide positive and negative rational numbers that are integers, fractions and terminating decimals; use efficient and generalizable procedures, including standard algorithms; raise positive rational numbers to whole-number exponents. For example: $3^4 \times (1/2)^2 = 81/4$.	R: Represent subtraction of integers on a number line.	SMMA_LO_02152
		R: Represent addition and subtraction of rational numbers (fractions) on a number line.	SMMA_LO_02153
		R: Represent addition and subtraction of rational numbers (decimals) on a number line.	SMMA_LO_02154
7.1.2.2	Use real-world contexts and the inverse relationship between addition and subtraction to explain why the procedures of arithmetic with negative rational numbers make sense. For example: Multiplying a distance by -1 can be thought of as representing that same distance in the opposite direction. Multiplying by -1 a second time reverses directions again, giving the distance in the original direction.	Identify $-(a + b)$ as equivalent to $-a + (-b)$, where a and b are 1 to 9.	SMMA_LO_00115
		Identify $-(a + b)$ as equivalent to $-a - b$, where a and b are 1 to 9.	SMMA_LO_00116
		Identify $-a - (-b)$ as equivalent to $-a + b$ (minuends and subtrahends -9 to 9).	SMMA_LO_01521
7.1.2.4	Solve problems in various contexts involving calculations with positive and negative rational numbers and positive integer exponents, including computing simple and compound interest.	Find the final temperature given the initial temperature and the temperature increase.	SMMA_LO_01632
		Find three consecutive integers when given their sum.	SMMA_LO_01639
		Solve for a variable in the formula for simple interest (whole numbers and decimals).	SMMA_LO_01805
7.1.2.5	Use proportional reasoning to solve problems involving ratios in various contexts. For example: A recipe calls for milk, flour and sugar in a ratio of 4:6:3 (this is how recipes are often given in large institutions, such as hospitals). How much flour and milk would be needed with 1 cup of sugar?	Given the number of kilowatt-hours used and a price, find the total cost of power.	SMMA_LO_01336
		Convert light years to kilometers and kilometers to light years.	SMMA_LO_01339
7.1.2.6	Demonstrate an understanding of the relationship between the absolute value of a rational number and distance on a number line. Use the symbol for absolute value. For example: $ -3 $ represents the distance from -3 to 0 on a number line or 3 units; the distance between 3 and $9/2$ on the number line is $ 3 - 9/2 $ or $3/2$.	Identify absolute value as a distance from zero on a number line.	SMMA_LO_01823
		Evaluate the absolute value of a number.	SMMA_LO_01824
		Compare the absolute values of positive and negative quantities in a real-world situation.	SMMA_LO_02111

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7.2.1.2	Understand that the graph of a proportional relationship is a line through the origin whose slope is the unit rate (constant of proportionality). Know how to use graphing technology to examine what happens to a line when the unit rate is changed.	Interpret the meaning of a point on the graph of a proportional relationship in terms of the situation; use this information to answer questions about the situation.	SMMA_LO_02089
7.2.2.1	Represent proportional relationships with tables, verbal descriptions, symbols, equations and graphs; translate from one representation to another. Determine the unit rate (constant of proportionality or slope) given any of these representations. For example: Larry drives 114 miles and uses 5 gallons of gasoline. Sue drives 300 miles and uses 11.5 gallons of gasoline. Use equations and graphs to compare fuel efficiency and to determine the costs of various trips.	Determine the fraction needed to complete the proportion.	SMMA_LO_01827
		Identify the unit rate given a table, a graph, an equation, a diagram, or a word problem.	SMMA_LO_02001
		Identify the constant of proportionality given a table, a graph, an equation, a diagram, or a word problem.	SMMA_LO_02002
		Graph proportional relationships and interpret the unit rate as the slope of the graph.	SMMA_LO_02073
		Compare a proportional relationship represented as a graph to a proportional relationship represented as a table.	SMMA_LO_02074
		Identify two unit rates for a given word problem.	SMMA_LO_02114
7.2.2.2	Solve multi-step problems involving proportional relationships in numerous contexts. For example: Distance-time, percent increase or decrease, discounts, tips, unit pricing, lengths in similar geometric figures, and unit conversion when a conversion factor is given, including conversion between different measurement systems. Another example: How many kilometers are there in 26.2 miles?	Find the total cost, given an amount and the sales tax percentage.	SMMA_LO_00178
		Find the percent of increase.	SMMA_LO_00278
		Find total earnings for two to four weeks given the weekly salary, commission percentage, and total sales (whole number percents).	SMMA_LO_01637
		Convert measurement units either by making a table or by multiplying by a unit rate.	SMMA_LO_02117
		R: Identify a correct expression to solve a problem about sales tax.	SMMA_LO_00845
7.2.2.4	Represent real-world or mathematical situations using equations and inequalities involving variables and positive and negative rational numbers. For example: "Four-fifths is three greater than the opposite of a number" can be represented as $\frac{4}{5} = n + 3$, and "height no bigger than half the radius" can be represented as $h \leq \frac{r}{2}$. Another example: "x is at least -3 and less than 5" can be represented as $-3 \leq x < 5$, and also on a number line.	Identify the equation that translates the written phrase ($ax + b = c$).	SMMA_LO_00385
		Identify the equation that translates the written phrase ($ax + b = c$).	SMMA_LO_00386
		Identify the one-step equation that is a translation of the written phrase within a context.	SMMA_LO_01813
		Identify the two-step equation that is a translation of the written phrase within a context.	SMMA_LO_01814
		Translate an expression into a written phrase (two-step).	SMMA_LO_01816
		Identify the equation translated from a written phrase.	SMMA_LO_01852
		Identify the inequality translated from a written phrase.	SMMA_LO_01853

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MN Standard	MN Standard Text	Item Description	Item ID
7.2.2.4	<p>Represent real-world or mathematical situations using equations and inequalities involving variables and positive and negative rational numbers.</p> <p>For example: "Four-fifths is three greater than the opposite of a number" can be represented as $\frac{4}{5} = n + 3$, and "height no bigger than half the radius" can be represented as $h \leq r/2$.</p> <p>Another example: "x is at least -3 and less than 5" can be represented as $-3 \leq x < 5$, and also on a number line.</p>	R: Identify an equation that can be used to solve a two-step problem in context.	SMMA_LO_01297
		R: Identify the written phrase translated from an inequality.	SMMA_LO_01869
		R: Identify the written phrase translated from an inequality.	SMMA_LO_01870
7.2.3.1	<p>Use properties of algebra to generate equivalent numerical and algebraic expressions containing rational numbers, grouping symbols and whole number exponents. Properties of algebra include associative, commutative and distributive laws.</p> <p>For example: Combine like terms (use the distributive law) to write $3x - 7x + 1 = (3 - 7)x + 1 = -4x + 1$.</p>	Identify an equivalent expression of commutativity for addition of integers.	SMMA_LO_00114
		Identify an equivalent expression with integers (four one-digit addends).	SMMA_LO_00117
		Identify $-(a + b)$ as equivalent to $-a - b$, where a and b are 1 to 9.	SMMA_LO_00118
		Compare two expressions using the additive inverse property.	SMMA_LO_00120
		Identify an equivalent variable expression $-(a + b) = -a + (-b)$.	SMMA_LO_00124
		Identify an equivalent expression for $a \times (b + c)$ with variables.	SMMA_LO_00129
		Identify $a \times (b - c)$ as equivalent to $(a \times b) - (a \times c)$.	SMMA_LO_00130
		Identify $a - b$ as equivalent to $a + (-b)$, where a and b are 1 to 20.	SMMA_LO_01514
		Identify $-a - b$ as equivalent to $-a + (-b)$ (minuends -20 to -1).	SMMA_LO_01515
		Identify $a - (-b)$ as equivalent to $a + b$ (minuends 1 to 10).	SMMA_LO_01517
		Identify $-(a - b)$ as equivalent to $-a + b$ (a and b from 1 to 9).	SMMA_LO_01523
		Identify $-(-a - b)$ as equivalent to $a + b$ (a and b from 1 to 9).	SMMA_LO_01524
		Identify $-(a - b)$ as equivalent to $-a + b$ with variables.	SMMA_LO_01529
		Identify $-(-a - b)$ as equivalent to $a + b$ with variables.	SMMA_LO_01530
		Identify $a \times (b - c)$ as equivalent to $(a \times b) - (a \times c)$ with variables.	SMMA_LO_01533
		Identify $a \times (b - c)$ as equivalent to $(a \times b) - (a \times c)$.	SMMA_LO_01534
		Apply the properties of operations to generate equivalent expressions.	SMMA_LO_02059
		Choose all expressions that are equivalent to a given expression.	SMMA_LO_02060
		Apply properties of operations to add two linear expressions.	SMMA_LO_02149
		Rewrite an expression from context by factoring and combining like terms.	SMMA_LO_02150

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7.2.3.2	Evaluate algebraic expressions containing rational numbers and whole number exponents at specified values of their variables. For example: Evaluate the expression $\frac{1}{3}(2x - 5)^2$ at $x = 5$.	Complete an input/output table given a two-step rule; then plot the ordered pairs on coordinate grid.	SMMA_LO_01758
		Evaluate an algebraic expression with exponents (integers -10 to 10).	SMMA_LO_01818
		Evaluate an algebraic expression (integers -10 to 10).	SMMA_LO_01842
		Evaluate an algebraic expression with three variables (-5.9 to 5.9).	SMMA_LO_01843
7.2.3.3	Apply understanding of order of operations and grouping symbols when using calculators and other technologies. For example: Recognize the conventions of using a caret (^ raise to a power) and asterisk (* multiply); pay careful attention to the use of nested parentheses.	R: Evaluate an expression using the order of operations.	SMMA_LO_01091
7.2.4.1	Represent relationships in various contexts with equations involving variables and positive and negative rational numbers. Use the properties of equality to solve for the value of a variable. Interpret the solution in the original context. For example: Solve for w in the equation $P = 2w + 2l$ when $P = 3.5$ and $l = 0.4$. Another example: To post an Internet website, Mary must pay \$300 for initial set up and a monthly fee of \$12. She has \$842 in savings, how long can she sustain her website?	Solve for a in $a + b = c$ (a is from -20 to -1).	SMMA_LO_00388
		Solve for a in $a - b = c$ (differences from -19 to 11).	SMMA_LO_00389
		Solve for x in $ax = b$ (products from $-(4 \times 4)$ to $-(9 \times 9)$).	SMMA_LO_00390
		Solve for a in $a/b = c$ (products from $-(4 \times 4)$ to $-(9 \times 9)$).	SMMA_LO_00391
		Solve for x in $-x = a$ (numbers from -99 to 99).	SMMA_LO_00395
		Solve for a two-step equation in context.	SMMA_LO_01638
		Solve a one-step equation (multiplication and division, integers).	SMMA_LO_01800
		Solve a one-step equation (addition and subtraction, one-digit integers).	SMMA_LO_01801
		Solve a one-step equation (two-digit integers, addition and subtraction).	SMMA_LO_01844
		Solve a one-step equation (integers, multiplication and division).	SMMA_LO_01845
		Solve a one-step equation (fractions, addition and subtraction).	SMMA_LO_01848
		Solve a one-step equation (decimals, multiplication and division).	SMMA_LO_01849
		R: Determine whether the given values for x and y satisfy $y = ax + b$.	SMMA_LO_00398
R: Given a table of values for x and y , identify a true equation.	SMMA_LO_00399		
7.2.4.2	Solve equations resulting from proportional relationships in various contexts. For example: Given the side lengths of one triangle and one side length of a second triangle that is similar to the first, find the remaining side lengths of the second triangle. Another example: Determine the price of 12 yards of ribbon if 5 yards of ribbon cost \$1.85.	Form a proportion that can be used to solve for the height of an object.	SMMA_LO_00660
		Identify the correct proportion for the context, and then solve.	SMMA_LO_01826

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MN Standard	MN Standard Text	Item Description	Item ID
7.3.1.1	Demonstrate an understanding of the proportional relationship between the diameter and circumference of a circle and that the unit rate (constant of proportionality) is π . Calculate the circumference and area of circles and sectors of circles to solve problems in various contexts.	Find the circumference, given the length of the diameter or the radius ($\pi = 3.14$).	SMMA_LO_00828
		Measure the diameter of a circle, and then determine the circumference.	SMMA_LO_01779
		Measure the radius of a circle, and then determine the circumference.	SMMA_LO_01780
		Measure the diameter of a circle, and then determine the area.	SMMA_LO_01781
		Measure the radius of a circle, and then determine the area.	SMMA_LO_01783
		Determine the most accurate representation of the circumference of a circle.	SMMA_LO_01784
		Given the radius, find the circumference of a circle within context.	SMMA_LO_01855
		Given the diameter, find the circumference of a circle within context.	SMMA_LO_01856
		R: Identify parts of a circle (center, radius, and diameter).	SMMA_LO_00633
		R: Identify a part of a circle (center, radius, chord, or diameter).	SMMA_LO_00653
		7.3.1.2	Calculate the volume and surface area of cylinders and justify the formulas used. For example: Justify the formula for the surface area of a cylinder by decomposing the surface into two circles and a rectangle.
Use a formula to find the surface area of a cylinder or sphere.	SMMA_LO_00840		
Generalize a figure for surface area, and then use that formula to find the surface area of a given figure.	SMMA_LO_02144		
7.3.2.1	Describe the properties of similarity, compare geometric figures for similarity, and determine scale factors. For example: Corresponding angles in similar geometric figures have the same measure.	Identify similar polygons.	SMMA_LO_00610
		Identify two figures as being similar, congruent, or neither.	SMMA_LO_00618
		Identify congruent angles.	SMMA_LO_00637
		Identify the polygon that is not similar to the others.	SMMA_LO_00645
		Identify the example that is a counterexample to a statement.	SMMA_LO_00649
		Identify similar triangles or rectangles on a geoboard.	SMMA_LO_00847
		Use similar triangles to explain why the slope m is the same between any two distinct points on a nonvertical line in the coordinate plane.	SMMA_LO_02075
		R: Match the corresponding sides or angles of two similar figures.	SMMA_LO_00673
7.3.2.2	Apply scale factors, length ratios and area ratios to determine side lengths and areas of similar geometric figures. For example: If two similar rectangles have heights of 3 and 5, and the first rectangle has a base of length 7, the base of the second rectangle has length $35/3$.	R: Determine the algebraic expression used to find the coordinates of the image of a figure under a dilation with the origin as the center of dilation.	SMMA_LO_02142

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7.3.2.3	Use proportions and ratios to solve problems involving scale drawings and conversions of measurement units. For example: 1 square foot equals 144 square inches. Another example: In a map where 1 inch represents 50 miles, 1/2 inch represents 25 miles.	Identify the scale factor in similar shapes to find the missing corresponding sides.	SMMA_LO_00513
		Determine distances from scale drawings (inches to miles, cm to km).	SMMA_LO_00815
		Interpret scale drawings (metric and customary units of length).	SMMA_LO_00846
7.3.2.4	Graph and describe translations and reflections of figures on a coordinate grid and determine the coordinates of the vertices of the figure after the transformation. For example: The point (1, 2) moves to (-1, 2) after reflection about the y-axis.	Determine the missing coordinate of a vertex of a triangle in a transformation.	SMMA_LO_01736
		Identify a transformation as a slide, flip, or a turn.	SMMA_LO_01776
		Reflect a figure on a coordinate plane over the x-axis, the y-axis, or the line $y = x$.	SMMA_LO_02105
		Given two points, describe how the points are related: reflected across the x-axis, reflected across the y-axis, or reflected across both axes.	SMMA_LO_02108
		Translate a figure on a coordinate plane.	SMMA_LO_02120
		Reflect a figure on a coordinate plane over the x-axis, the y-axis, or the line $y = x$; verify properties of the rotation.	SMMA_LO_02122
		Translate a figure on a coordinate plane; verify properties of the rotation.	SMMA_LO_02123
		Reflect a figure, find the coordinates of the reflected figure, and describe the effect of the reflection on the coordinates.	SMMA_LO_02125
7.4.1.1	Design simple experiments and collect data. Determine mean, median and range for quantitative data and from data represented in a display. Use these quantities to draw conclusions about the data, compare different data sets, and make predictions. For example: By looking at data from the past, Sandy calculated that the mean gas mileage for her car was 28 miles per gallon. She expects to travel 400 miles during the next week. Predict the approximate number of gallons that she will use.	Determine the range of a set of data represented in a line graph.	SMMA_LO_01176
7.4.2.1	Use reasoning with proportions to display and interpret data in circle graphs (pie charts) and histograms. Choose the appropriate data display and know how to create the display using a spreadsheet or other graphing technology.	Select a circle graph whose sectors are in the same proportions as the data displayed in a given table.	SMMA_LO_01160
		Select a table that contains data that are in the same proportions as the sectors of a graph.	SMMA_LO_01162
		R: Read and interpret data from a circle graph labeled with percents.	SMMA_LO_01208

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7.4.3.2	Calculate probability as a fraction of sample space or as a fraction of area. Express probabilities as percents, decimals and fractions. For example: Determine probabilities for different outcomes in game spinners by finding fractions of the area of the spinner.	Given a graphical representation of a spinner partitioned into sectors of different sizes, each containing one of several possible pictures, label events as certain or impossible or pairs of events as more, less, or equally likely.	SMMA_LO_01212
		Given a graphical representation of two spinners, select the spinner for which a given event has the highest probability of occurring.	SMMA_LO_01216
		Given a coordinate grid to represent outcomes of tossing a pair of number cubes, compute theoretical probability of an event defined by the sum of a pair of outcomes.	SMMA_LO_01220
		Write a fraction to express the probability of an event.	SMMA_LO_01667
8.1.1.2	Compare real numbers; locate real numbers on a number line. Identify the square root of a positive integer as an integer, or if it is not an integer, locate it as a real number between two consecutive positive integers. For example: Put the following numbers in order from smallest to largest: 2, $\sqrt{3}$, -4, -6.8, $-\sqrt{37}$. Another example: $\sqrt{68}$ is an irrational number between 8 and 9.	Find the square root of a number using a calculator (numbers to 4000).	SMMA_LO_01120
		Drag rational and irrational values to their correct positions on a number line.	SMMA_LO_02141
8.1.1.4	Know and apply the properties of positive and negative integer exponents to generate equivalent numerical expressions. For example: $3^2 \times 3^{-5} = 3^{-3} = (1/3)^3 = 1/27$.	Multiply or divide two numbers with exponents (same base, exponents less than 18).	SMMA_LO_01104
		Find the missing exponent in a multiplication or division number sentence.	SMMA_LO_01111
8.1.1.5	Express approximations of very large and very small numbers using scientific notation; understand how calculators display numbers in scientific notation. Multiply and divide numbers expressed in scientific notation, express the answer in scientific notation, using the correct number of significant digits when physical measurements are involved. For example: $(4.2 \times 10^4) \times (8.25 \times 10^3) = 3.465 \times 10^8$, but if these numbers represent physical measurements, the answer should be expressed as 3.5×10^8 because the first factor, 4.2×10^4 , only has two significant digits.	Express a number in scientific notation (exponents 1 to 6).	SMMA_LO_01113
		Given the scientific notation, determine the standard notation of a number (the power of 10 has an exponent of 1 to 6).	SMMA_LO_01121
		Find the missing exponent for a number written in scientific notation (the exponent is 1 to 6).	SMMA_LO_01122
		Write very small numbers in scientific notation.	SMMA_LO_02070
		Write very large numbers in scientific notation.	SMMA_LO_02071
		Compare numbers written in scientific notation.	SMMA_LO_02072

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8.2.1.1	<p>Understand that a function is a relationship between an independent variable and a dependent variable in which the value of the independent variable determines the value of the dependent variable. Use functional notation, such as $f(x)$, to represent such relationships.</p> <p>For example: The relationship between the area of a square and the side length can be expressed as $f(x) = x^2$. In this case, $f(5) = 25$, which represents the fact that a square of side length 5 units has area 25 units squared.</p>	Identify an expression to describe the pattern generated by a table.	SMMA_LO_01742
		Identify a two-step expression to describe the pattern generated by a table (input = 1000).	SMMA_LO_01753
		Given a list of ordered pairs of a relation, identify two ordered pairs that show the relation is not a function.	SMMA_LO_01811
		Given a graph of a relation, identify two ordered pairs on the graph that show the relation is not a function.	SMMA_LO_01812
		Given a set of graphs of relations, identify which graphs represent functions.	SMMA_LO_01835
		Complete a table of values and graph the equation of a quadratic function.	SMMA_LO_01836
		Complete a table of values and graph the equation of a linear function.	SMMA_LO_01837
8.2.1.2	<p>Use linear functions to represent relationships in which changing the input variable by some amount leads to a change in the output variable that is a constant times that amount.</p> <p>For example: Uncle Jim gave Emily \$50 on the day she was born and \$25 on each birthday after that. The function $f(x) = 50 + 25x$ represents the amount of money Jim has given after x years. The rate of change is \$25 per year.</p>	Determine if a table values represents a linear or nonlinear function.	SMMA_LO_01834
8.2.1.3	<p>Understand that a function is linear if it can be expressed in the form $f(x) = mx + b$ or if its graph is a straight line.</p> <p>For example: The function $f(x) = x^2$ is not a linear function because its graph contains the points (1,1), (-1,1) and (0,0), which are not on a straight line.</p>	Identify whether graphs are linear or nonlinear.	SMMA_LO_01832
		Identify if an equation is a linear or nonlinear function.	SMMA_LO_01833
		Identify the function that is represented by a table of values (linear and nonlinear).	SMMA_LO_01883
8.2.2.1	<p>Represent linear functions with tables, verbal descriptions, symbols, equations and graphs; translate from one representation to another.</p>	Identify a two-step expression to describe the pattern generated by a table (input = 100).	SMMA_LO_01752
		Complete an input/output table given a one-step rule; then plot the ordered pairs on a coordinate grid.	SMMA_LO_01757
		Complete an input/output table and identify the algebraic equation that describes the one-step rule.	SMMA_LO_01806
		Complete an input/output table and identify the algebraic equation that describes the two-step rule.	SMMA_LO_01807

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8.2.2.2	Identify graphical properties of linear functions including slopes and intercepts. Know that the slope equals the rate of change, and that the y-intercept is zero when the function represents a proportional relationship.	Derive the equation $y = mx$ for a line through the origin, and $y = mx + b$ for a line intercepting the vertical axis at b .	SMMA_LO_02076
		Identify the rate of change and the y-intercept of two linear functions, one represented graphically, and one represented either algebraically or in a table.	SMMA_LO_02101
		Identify the rate of change and the y-intercept of two linear functions, one represented in a verbal description, and one represented either graphically or algebraically.	SMMA_LO_02102
		Identify the rate of change and the y-intercept of two linear functions, one represented in a table, and one represented either algebraically or in a verbal description.	SMMA_LO_02103
8.2.3.1	Evaluate algebraic expressions, including expressions containing radicals and absolute values, at specified values of their variables. For example: Evaluate $\pi r^2 h$ when $r = 3$ and $h = 0.5$, and then use an approximation of π to obtain an approximate answer.	Find the circumference, given the length of the diameter or the radius ($\pi = 3.14$).	SMMA_LO_00828
		Use a formula to find the volume of a cylinder.	SMMA_LO_00839
		Use a formula to find the surface area of a cylinder or sphere.	SMMA_LO_00840
		Use a formula to find the volume of a cone or a sphere.	SMMA_LO_00844
		Measure the diameter of a circle, and then determine the circumference.	SMMA_LO_01779
		Measure the radius of a circle, and then determine the circumference.	SMMA_LO_01780
		Measure the diameter of a circle, and then determine the area.	SMMA_LO_01781
		Measure the radius of a circle, and then determine the area.	SMMA_LO_01783
		Determine the most accurate representation of the circumference of a circle.	SMMA_LO_01784
8.2.4.2	Solve multi-step equations in one variable. Solve for one variable in a multi-variable equation in terms of the other variables. Justify the steps by identifying the properties of equalities used. For example: The equation $10x + 17 = 3x$ can be changed to $7x + 17 = 0$, and then to $7x = -17$ by adding/subtracting the same quantities to both sides. These changes do not change the solution of the equation. Another example: Using the formula for the perimeter of a rectangle, solve for the base in terms of the height and perimeter.	Complete the steps to solve for x in $ax + b = c$.	SMMA_LO_00383
		Solve for x in $ax + b = c$.	SMMA_LO_00384
		Complete the steps to solve for x in $ax + b = c$ (x is from -9 to -1).	SMMA_LO_00392
		Complete the steps to solve for x in $ax - b = c$ (x is from -9 to 2).	SMMA_LO_00393
		Complete the steps to solve for x in $ax - b = c$ (x is from -9 to 9).	SMMA_LO_00394
		Complete the steps to solve for x in $a - x = b$.	SMMA_LO_00396
		Determine whether a given value for x is a solution for $ax + b = c$ (x is from -9 to 9).	SMMA_LO_00397
		Solve a two-step equation (integers).	SMMA_LO_01846

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MN Standard	MN Standard Text	Item Description	Item ID
8.2.4.2	<p>Solve multi-step equations in one variable. Solve for one variable in a multi-variable equation in terms of the other variables. Justify the steps by identifying the properties of equalities used.</p> <p>For example: The equation $10x + 17 = 3x$ can be changed to $7x + 17 = 0$, and then to $7x = -17$ by adding/subtracting the same quantities to both sides. These changes do not change the solution of the equation.</p> <p>Another example: Using the formula for the perimeter of a rectangle, solve for the base in terms of the height and perimeter.</p>	Solve a two-step equation (fractions, multiplication).	SMMA_LO_01850
		Solve a two-step equation (decimals).	SMMA_LO_01851
		Transform a given multi-step equation into a simpler form.	SMMA_LO_02079
		Generate and solve an equation with variables on both sides of the equal sign in a real-world context.	SMMA_LO_02145
8.2.4.4	<p>Use linear inequalities to represent relationships in various contexts.</p> <p>For example: A gas station charges \$0.10 less per gallon of gasoline if a customer also gets a car wash. Without the car wash, gas costs \$2.79 per gallon. The car wash is \$8.95. What are the possible amounts (in gallons) of gasoline that you can buy if you also get a car wash and can spend at most \$35?</p>	Write an inequality of the form $px + q > r$ or $px + q < r$ to represent a constraint in a real-world problem.	SMMA_LO_02083
8.2.4.5	<p>Solve linear inequalities using properties of inequalities. Graph the solutions on a number line.</p> <p>For example: The inequality $-3x < 6$ is equivalent to $x > -2$, which can be represented on the number line by shading in the interval to the right of -2.</p>	Solve an inequality of the form $px + q > r$ or $px + q < r$; then graph the solution on a number line.	SMMA_LO_02084
8.2.4.7	<p>Solve systems of linear equations in two variables symbolically, graphically and numerically.</p> <p>For example: Marty's cell phone company charges \$15 per month plus \$0.04 per minute for each call. Jeannine's company charges \$0.25 per minute. Use a system of equations to determine the advantages of each plan based on the number of minutes used.</p>	Identify the solution to a system of linear equations by locating the point of intersection on its graph.	SMMA_LO_02080
		Model a real-world problem with a system of linear equations. Then solve it by locating the intersection point of the graphs of the two equations.	SMMA_LO_02134

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MN Standard	MN Standard Text	Item Description	Item ID
8.2.4.8	Understand that a system of linear equations may have no solution, one solution, or an infinite number of solutions. Relate the number of solutions to pairs of lines that are intersecting, parallel or identical. Check whether a pair of numbers satisfies a system of two linear equations in two unknowns by substituting the numbers into both equations.	If a system of linear equations has 0 or infinitely many solutions, solve it by inspection. If it has 1 solution, solve it either algebraically or by graphing.	SMMA_LO_02133
8.3.1.1	Use the Pythagorean Theorem to solve problems involving right triangles. For example: Determine the perimeter of a right triangle, given the lengths of two of its sides. Another example: Show that a triangle with side lengths 4, 5 and 6 is not a right triangle.	Find the measurement of the hypotenuse using the Pythagorean theorem. (2D)	SMMA_LO_01854
8.3.1.2	Determine the distance between two points on a horizontal or vertical line in a coordinate system. Use the Pythagorean Theorem to find the distance between any two points in a coordinate system.	Given two points on a coordinate grid, draw a right triangle whose hypotenuse connects the two points. Then use the Pythagorean Theorem to find the distance between the two points.	SMMA_LO_02100
		Find distances between points with the same first coordinate or the same second coordinate by using coordinates and absolute value.	SMMA_LO_02113
8.3.1.3	Informally justify the Pythagorean Theorem by using measurements, diagrams and computer software.	Explain a proof of the Pythagorean Theorem.	SMMA_LO_02131
8.4.1.1	Collect, display and interpret data using scatterplots. Use the shape of the scatterplot to informally estimate a line of best fit and determine an equation for the line. Use appropriate titles, labels and units. Know how to use graphing technology to display scatterplots and corresponding lines of best fit.	Identify positive, negative, or no association for sets of actual data.	SMMA_LO_01222
8.4.1.2	Use a line of best fit to make statements about approximate rate of change and to make predictions about values not in the original data set. For example: Given a scatterplot relating student heights to shoe sizes, predict the shoe size of a 5'4" student, even if the data does not contain information for a student of that height.	Choose an approximation based on a trend line for bivariate data.	SMMA_LO_02143

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