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Mathematics Standards 2022
https://education.mn.gov/MDE/dse/stds/Math/
DM = Dimensions Math

Kindergarten

Standard	Standard Description	DM	Chapter	Lesson
Data Analysis				
Data Sciences				
0.1.1.1	Notice and describe patterns in data-rich situations.			
0.1.1.2	Organize objects, draw pictures, or use tally marks to represent data and communicate observations. In DM K, students create picture graphs using provided data. Tally marks are not covered in DM K.	KA	4	11
Spatial Reasoning				
Measurement				
0.2.3.1	Compare objects with a measurable attribute in common, to see which object has "more of," "less of" or the "same as" the attribute and explain the reasoning.	KA	5	1–10
0.2.3.2	Describe several measurable attributes of objects such as length and weight.	KA	5	1–10
Geometry				
0.2.4.1	Sort objects using characteristics such as shape, size, color and thickness.	KA	1	1–7
			4	1–4, 11
0.2.4.2	Identify and compare two- and three-dimensional shapes such as squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, cones, cylinders and spheres using informal language to describe their similarities, differences, parts and other attributes.	KA	4	1–8
0.2.4.3	Compose, decompose and name simple shapes. Recognize shapes regardless of their overall size and orientation.	KA	4	1–12

Standard	Standard Description	DM	Chapter	Lesson
0.2.4.4	Describe objects in the environment using names of shapes. Describe the relative positions of these objects using terms such as above, below, beside, in front of, behind and next to.	KA	4	7
Patterns and Relationships				
Number Relationships				
0.3.5.1	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. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number with one and only one object. Understand that the last number said tells the number of objects counted. Understand that each successive number refers to a quantity that is one more. Name the position of an object in a sequence (ordinal count).	KA	2	1–11
			3	1–12
0.3.5.2	Count collections of objects up to 31 by grouping in 10s using ten-frames, cups or other tools.	KB	7	1, 2
			12	1–4
0.3.5.3	Read, write, compare, order, and represent whole numbers from 0 to at least 31 (with 0 representing the count of no objects) to answer the question, "how many?" Representations may include numerals, pictures, real objects, picture graphs, spoken words and manipulatives, such as connecting cubes. The numbers from 11 to 19 are composed of a 10 and one, two, three, four, five, six, seven, eight or nine ones.	KA	2	1–11
			3	1–12
		KB	7	1–7
			12	1–4
0.3.5.4	Count forward, with and without objects, to at least 31. Count backward from 20.	KB	7	1–7
			12	1–4
0.3.5.5	Find a number that is 1 more or 1 less than a given number.	KB	7	9

Standard	Standard Description	DM	Chapter	Lesson
0.3.5.6	Solve and represent a variety of addition and subtraction contextual situation types using objects, drawings, mental images or equations within 10.	KB	8	1–14
			9	1–12
			10	1–12
0.3.5.7	Compose and decompose numbers less than or equal to 10 into pairs in more than one way with objects and pictures. Record each decomposition with a drawing or equation.	KB	8	1–14
			10	1–12
0.3.5.8	Fluently add and subtract within 5.	KB	9	4–8, 11
			10	6, 7, 10
Equivalence and Relational Thinking				
0.3.6.1	Identify whether the number of objects in one group is greater than, less than or equal to the number of objects in another group (by using matching, counting strategies, and a number line).	KA	6	1–5
0.3.6.2	Recognize that the equal sign (=) is a comparison symbol of two math expressions of equal value number.	KA	9	1, 2, 3
			10	2–5
Patterns and Relationships				
0.3.7.1	Identify, create, complete, and extend simple patterns using shape, color, size, number, sounds and movements. Patterns may be repeating, growing or shrinking. Patterns with color, sound, or movement are covered in DM PreK. DM K covers patterns with shapes. Growing and shrinking patterns are not covered in DM K.	PKA	3	2–5
		KA	4	8, 9
0.3.7.2	Recognize patterns in counting. Skip count by 10s starting at zero up to 100.	KB	12	1

Grade 1

Standard	Standard Description	DM	Chapter	Lesson
Data Analysis				
Data Sciences				
1.1.1.1	Notice and describe patterns in data-rich situations and create statistical investigative questions with teacher guidance. Students interpret picture graphs and draw conclusions, but do not collect data or create graphs in DM 1.			
1.1.1.2	Collect and use data to consider and decide what data will answer a question. Represent the data as a drawing, tally marks, frequency bar graph and digitally communicate observations. Only picture graphs are covered in DM 1, not tally charts or frequency bar graphs. Digitally communicating observations is not included in DM 1.	1B	11	3
Chance and Uncertainty				
1.1.2.1	Describe outcomes of events as impossible, possible or certain. Probability is not covered in DM 1–5.			
Spatial Reasoning				
Measurement				
1.2.3.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.	1B	10	1, 2
1.2.3.2	Measure the length of an object in terms of non-standard units.	1B	10	3
1.2.3.3	Identify pennies, nickels and dimes. Find the value of a group of these coins, up to one dollar.	1B	19	1, 2
Geometry				
1.2.4.1	Describe attributes of two- and three-dimensional objects, such as triangles, squares, rectangles, circles, rectangular prisms, cylinders, cones and spheres.	1A	8	1, 2

Standard	Standard Description	DM	Chapter	Lesson
1.2.4.2	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles and quarter-circles) to create a composite shape. Decompose composite shapes into triangles, rectangles, squares and sectors.	1A	8	3
1.2.4.3	Describe objects in the environment using names of shapes and describe the relative positions of these objects using left and right.	K	1	1
			4	7
1.2.4.4	Identify shapes regardless of their orientations.	1A	8	1–4
Patterns and Relationships				
Number Relationships Students count, write numerals, look at place-value concepts, and compare numbers only within 100, not 120, in the DM textbook. The DM Teacher's Guide has extension for counting to 120.				
1.3.5.1	Count collections of objects up to 120 using groups of 5s or 10s.	1B	12	1, 2
			16	1
1.3.5.2	Read, write, compare, order and represent whole numbers from 0 to 120. Representations may include numerals, expanded notation, addition and subtraction, pictures, tally marks, number lines and manipulatives such as bundles of sticks, ten frames and base 10 blocks. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight or nine groups of 10s.	1A	1	1
			5	1
		1B	12	1, 2
			16	1
1.3.5.3	Count, with or without objects, forward and backward from any given number up to 120.	1B	12	1, 2
			16	1
1.3.5.4	Using models, pictures or numbers to recognize and describe the place value of numbers between 10 and 120 as a relationship of n groups of 10 plus an amount represented by a single digit (n × 10 + a).	1A	5	1
		1B	12	1, 2
			13	1–8
			16	1, 2
			17	1–12

Standard	Standard Description	DM	Chapter	Lesson
1.3.5.5	Estimate amounts up to 120 using benchmarks of 5s and 10s. Estimation is not covered in DM 1.			
1.3.5.6	Solve contextual situations, up to and including 20, using addition and subtraction strategies of adding to, taking from, part-part-whole, difference between and comparing. Solve for unknowns in contextual situations using objects, drawings and equations with unknowns represented by a symbol in all positions (result, change, start).	1A	3	1–6
			4	1–8
			5	5, 6
			6	1–5
			7	1–6
1.3.5.7	Add within 100, including adding a two-digit number with a one-digit number and adding a two-digit number with a multiple of 10 using concrete models, place value language and properties of operations. Understand that in adding two-digit numbers, sometimes it is necessary to compose a new ten.	1B	12	1, 2, 3
			13	1–4
			16	2, 3, 4
			17	1–3
1.3.5.8	Decompose numbers less than or equal to 10 into pairs, in more than one way, using objects or drawings. Record each decomposition with a drawing or equation.	1A	2	1–7
			4	1–8
1.3.5.9	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on, making ten, decomposing a number leading to a ten using the relationship between addition and subtraction and creating equivalent but easier or known sums.	1A	3	1–6
			4	1–8
			5	5, 6
			6	1–5
			7	1–6
1.3.5.10	Use combinations of 10 to add to the next decade through 100.	1B	12	1, 2, 3
			13	1–3
			16	2, 3, 4
			17	1–3

Standard	Standard Description	DM	Chapter	Lesson
1.3.5.11	Determine the double of any single digit number. In DM 1, students learn to add equal groups where the total is within 40.	1B	14	1
1.3.5.12	Represent and solve contextual equal sharing situations where a whole number of items is shared equally among 2 groups. Name the fractional amount using the word "half." In DM 1, students learn to share amounts within 40 into more than two equal groups.	1B	14	2
Equivalence and Relational Thinking				
1.3.6.1	Compare two two-digit numbers based on the meaning of the tens and ones digits.	1B	12	4
			16	4
1.3.6.2	Determine if equations involving addition and subtraction are true or false, including those with operations on both sides.	1A	3	1, 4
			7	1, 2
1.3.6.3	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.	1A	3	1–6
			4	1–8
			5	1–10
			6	1–5
			7	1–6
		1B	11	1, 2
Patterns and Relationships				
1.3.7.1	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. In DM 1, growing or shrinking pattern are not covered except in challenge problems in the workbook, and calculators are not used in DM 1-5.	1A	8	2, 4

Standard	Standard Description	DM	Chapter	Lesson
1.3.7.1	Recognize patterns in counting. Skip count by 2s and 5s starting at zero up to 120. Skip count by 10s starting at a non-zero number. Students count by tens in DM 1. They counted by fives in DM K, and use counting by fives to tell time to the five-minute mark and to count nickels.	KB	12	9, 10
		1B	16	3
			18	3
			19	2
1.3.7.1	Describe what is changing and what is staying the same in a visual growing pattern. Growing patterns are not covered in DM 1.			

Grade 2

Standard	Standard Description	DM	Chapter	Lesson
Data Analysis				
Data Sciences				
2.1.1.1	Notice and describe patterns in data-rich situations and create statistical investigative questions.	2B	14	1, 2, 3
2.1.1.2	Determine what counts as data to answer a statistical investigative question. Recognize that people collect data to answer questions and that data can vary.	2B	14	1, 2, 3
2.1.1.3	Collect and use data to consider and decide what data will answer a question. Represent the data as drawings, picture graphs, dot plots (a.k.a. line graphs or line plots) and with technology. Communicate observations. Dot plots are not covered until DM 4. Technology is not used until DM 4.	2B	14	1, 2, 3
2.1.1.4	Make predictions using patterns from data visualizations.	2B	14	1, 2, 3
Chance and Uncertainty				
2.1.2.1	Describe the difference between possible and likely. Probability is not covered in DM 1–5.			
Spatial Reasoning				
Measurement				
2.2.3.1	Estimate lengths using units of inches, feet, centimeters and meters.	2A	4	2, 4, 7
2.2.3.2	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard-length unit. Relate addition and subtraction to length.	2A	4	1, 5
2.2.3.3	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks and measuring tapes.	2A	4	1, 3, 4, 5, 7

Standard	Standard Description	DM	Chapter	Lesson
2.2.3.4	Represent whole numbers as lengths from 0 on a number line with equally spaced points corresponding to the numbers 0, 1, 2, … Represent whole-number sums and differences, within 100, on a number line. Number lines are not used to represent addition and subtraction past sums to 10 in DM, except to illustrate certain mental math strategies.			
2.2.3.5	Partition a rectangle into rows and columns of same-size squares and count the total number.	1B	15	1, 2, 3
		2B	11	1
2.2.3.6	Use addition and subtraction, within 100, to solve contextual situations involving lengths that are given in the same units using drawings (such as rulers) and equations with a symbol for the unknown number to represent the situation.	2A	4	1, 8
2.2.3.7	Identify pennies, nickels, dimes and quarters. Find the value of a group of coins and determine combinations of coins that equal a given amount, using $ and ¢ symbols appropriately.	1B	19	2
		2B	10	1, 2
Geometry				
2.2.4.1	Classify two- and three-dimensional figures according to the number and shape of faces and the number of sides, edges and vertices.	2B	15	1–6
2.2.4.2	Create a representation for basic two-dimensional shapes such as squares, circles, triangles, rectangles, trapezoids and hexagons.	2B	15	1–6
2.2.4.3	Describe the location of an object in relation to another object.	KA	4	7
Patterns and Relationships				
Number Relationships				
2.3.5.1	Count collections of objects using groups of 10s and 100s to 1,000. Represent the	2A	1	1, 4, 5

Standard	Standard Description	DM	Chapter	Lesson
	counting strategy and the total using words, symbols and pictures.			
2.3.5.2	Read, write, compare, order and represent whole numbers up to 1,000. Representations may include numerals, expanded notation, addition, subtraction, multiplication, words, pictures, tally marks, number lines and manipulatives such as bundles of sticks, ten frames and base 10 blocks.	2A	1	4–6
2.3.5.3	Given a three-digit number, mentally find 10 more or 10 less and 100 more or 100 less than the number. Justify reasoning by referencing a model.	2A	1	7
2.3.5.4	Recognize and describe the place value of numbers between 10 and 1,000 as a relationship of groups of ten, hundreds and thousands plus an amount of a single digit. Know that 100 is 10 tens and a thousand is 10 hundreds or 100 tens.	2A	1	4, 5
2.3.5.5	Estimate sums and differences of two-digit numbers. Estimation is not covered until DM 3. Student are supposed to be able to find exact answers mentally for sums and differences of two-digit numbers in DM 2.			
2.3.5.6	Use addition and subtraction, within 1,000, to solve contextual situations using concrete models or drawings based on place value, properties of operations and/or the relationship between addition and subtraction. Relate the strategy to a written method.	2A	3	1–12
2.3.5.7	Use a range of strategies and algorithms based on knowledge of place value and equality to flexibly add and subtract two-digit numbers. Strategies may include decomposition, expanded notation and partial sums and differences. Use place	2B	8	1, 3

Standard	Standard Description	DM	Chapter	Lesson
	value and properties of operations to explain why strategies works.			
2.3.5.8	Fluently add and subtract, within 20, using mental strategies that include incrementing, compensation or fact families.	2B	2	1–5
2.3.5.9	Use landmarks of 10 to fluently add to 100 and subtract from 100.	2B	8	2, 3
2.3.5.10	Represent and solve contextual equal sharing situations where a whole number of items is shared equally among 2 or 4 groups. Name the fractional amount using the words "halves" and "fourths." Recognize that equal shares of identical wholes need not have the same shape.	2A	6	4
			7	8
		2B	9	7
			11	1
Equivalence and Relational Thinking				
2.3.6.1	Compare two- and three-digit numbers based on meanings of the hundreds, tens and ones digits.	2A	1	6
2.3.6.2	Use number sentences involving addition, subtraction and unknowns to represent given situations. Use the relationship of addition and subtraction to find values for the unknowns that make the number sentences true.	2A	2	1–5
			3	1–12
		2B	8	1–10
2.3.6.3	Make conjectures and justifications involving subtraction and addition with true/false and open number equations.	2A	2	1–5
			3	1–12
		2B	8	1–10
Patterns and Relationships				
2.3.7.1	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 situations in various contexts.	2A	6	1, 2
			7	1–7
		2B	9	1, 2, 5, 6
2.3.7.2	Recognize patterns in counting. Skip count by 2s and 5s from any given number up to 120.			

Standard	Standard Description	DM	Chapter	Lesson
	Students skip count by 5s to 100 in DM K and DM 1. They skip count by 2s to 20 in the context of learning to multiply by 2 in DM 2.			
2.3.7.3	Use numeric expressions to describe a visual growing pattern.			

Grade 3

Standard	Standard Description	DM	Chapter	Lesson
Data Analysis				
Data Sciences				
3.1.1.1	Notice and describe patterns in data-rich situations or given data sets. Ask statistical questions that can be answered with data.	3A	7	1
3.1.1.2	Describe how data can be collected, including from surveys, grouping of items and measurement, to answer a statistical investigative question.	3A	7	1
3.1.1.3	Collect and organize data to answer a statistical question using various tools and addressing missing or incomplete data. Represent data in a variety of ways including technology. Use of technology to represent data is not included until DM 4.	3A	7	1–3
3.1.1.4	Make predictions and recognize that the amount and source of the data impacts the accuracy of predictions.	3A	7	1–3
3.1.1.5	Critically analyze data visualizations, including frequency tables, bar graphs, picture graphs or number line plots having a variety of scales to support a claim and solve situations. Line plots are not covered until DM 4.	3A	7	1–3
Chance and Uncertainty				
3.1.2.1	Describe outcomes of events as impossible, certain, likely, unlikely and equally likely. Probability is not covered in DM 1–5.			
Spatial Reasoning				
Measurement				
3.2.3.1	Measure lengths to the nearest fourth when measuring with standard units.	3B	9	2
3.2.3.2	Compare and contrast the relative sizes of measurement units within one system	2A	4	1, 3, 5, 7

Standard	Standard Description	DM	Chapter	Lesson
	(inches and feet, centimeters and meters, grams and kilograms, ounces and pounds).		5	1, 2, 3
		3B	11	1, 5, 6
3.2.3.3	Calculate the perimeter of a polygon with whole number side lengths.	3B	13	1, 2
3.2.3.4	Use addition and subtraction with whole numbers, within 100, to calculate change up to one dollar in several different ways, using $ and ¢ symbols appropriately.	1B	19	1, 2
		2B	10	1
Geometry				
3.2.4.1	Create representations of regular and irregular polygons with a given number of sides, including triangles, quadrilaterals, pentagons, hexagons and octagons.	1A	8	2, 3
		2B	15	2
Patterns and Relationships				
Number Relationships				
3.3.5.1	Given a value, mentally find 100 more or 100 less, 1,000 more or 1,000 less and 10,000 more or 10,000 less than the number. Justify reasoning by referencing a model.	3A	1	1, 2, 7
3.3.5.2	Recognize and describe the place value of numbers between 10 and 10,000 as a relationship of groups of ten, hundreds and thousands plus an amount of a single digit. Know that 10,000 is 100 hundreds, 1,000 is 10 hundreds or 100 tens.	3A	1	1, 2, 3
3.3.5.3	Compare and order whole numbers up to 100,000 justifying with place value language, number lines, and other tools using >, = and < symbols to record the results of comparisons.	3A	1	4
3.3.5.4	Estimate sums and differences up to 1,000 using strategies based on benchmarks and place value language. DM 3A lessons include addition and subtraction within 10,000.	3A	3	4, 5

Standard	Standard Description	DM	Chapter	Lesson
3.3.5.5	Use a range of strategies and algorithms based on knowledge of place value and equality to flexibly add and subtract within 1,000. Strategies may include decomposition, expanded notation and partial sums and differences. Explain how the strategies work using place value and the properties of operations. DM 3A lessons include addition and subtraction within 10,000.	2A	3	1–12
		3A	3	1–7
3.3.5.6	Represent and solve contextual situations involving multiplication, measurement division and partitive division with single digit factors using visual models.	2A	6	1–7
		3A	4	1, 3
3.3.5.7	Multiply and divide within 144, using strategies such as equal groups, repeated addition, the relationship between multiplication and division or properties of operations. Develop fluency with facts of 2s, 5s, 10s and square products. Students multiply and divide when one of the factors is 2, 3, 4, 5, or 10 in DM 2, and when both factors 1 to 10 in DM 3. They do not multiply or divide by 11 or 12 until they learn place-value concepts for multiplying or dividing by a 2-digit number until G4.	2A	7	1–11
		2B	9	1–9
		3A	4	1, 2, 4
		3A	5	1–10
		3B	8	1, 2, 6, 7
3.3.5.8	Multiply one-digit whole numbers by multiples of 10 and 100 using strategies such as decomposition of factors of ten, place value language, repeated addition and properties of operations.	3A	5	1
3.3.5.9	Partition a whole into halves, thirds, fourths and eighths. Wholes can be circles, rectangles and the distance between 0 and 1 on a number line.	2B	11	2
		3B	9	1, 2
3.3.5.10	Use pictures and symbols to represent non-unit fractions up to 2 as sums of unit	2B	11	3, 4
		3B	9	1, 2

Standard	Standard Description	DM	Chapter	Lesson
	fractions using halves, fourths, thirds and eighths. Fractions are not restricted to halves, fourths, thirds, and eighths in DM 2 or DM 3.			
3.3.5.11	Generate equivalent forms of one-half and 1 using fractions with denominators of 2, 4 and 8 and justify why these forms are equivalent using a visual model. Lessons in DM 3 include other equivalent fractions besides 1/2, 2/4, and 4/8.	3B	10	1, 2, 3
3.3.5.11	Compare and order unit fractions using visual models and describe how the size of the fraction changes as the denominator changes.	2B	11	5
3.3.5.13	Use addition and subtraction with estimated whole numbers to create short-term and long-term spending and saving goals based on planned and unplanned financial decisions.			
Equivalence and Relational Thinking				
3.3.6.1	Use relational thinking to find a missing value in an open number sentence with up to three-digit whole number addition and subtraction expressions. Determine if the equation is true or false. Justify your reasoning.	2A	6	6
		2B	7	3, 4, 7, 8, 9
		3A	4	4
		3B	8	1, 2, 6
3.3.6.2	Make conjectures and justifications about multiplication and division involving 0 and 1 with true/false and open number equations.	3A	4	4
3.3.6.3	Make conjectures and justifications using the commutative and associative properties of addition and multiplication with true/false and open number equations.	2A	6	2

Standard	Standard Description	DM	Chapter	Lesson
Patterns and Relationships				
3.3.7.1	Create, describe and apply single-operation input-output rules involving addition, subtraction and multiplication to solve situations in various contexts, including when x and y are 0.			
3.3.7.2	Create the next two terms and the previous term in a visual pattern, growing or shrinking, and justify reasoning. Growing and shrinking patterns are not covered until DM 4. Shape patterns are covered in DM 1 and 2.	2B	15	4

Grade 4

Standard	Standard Description	DM	Chapter	Lesson
Data Analysis				
Data Sciences				
4.1.1.1	Notice and describe patterns in data-rich situations or two given related data sets that are descriptive and comparative. Ask meaningful statistical questions that can be answered with data.	4A	9	1–4
4.1.1.2	Collect and organize data to answer a statistical question, analyze variability and address missing, incomplete and bias in data. Represent data in a variety of ways, including technology.	4A	9	1–4
4.1.1.3	Make predictions and recognize that how the data was collected impacts the reliability of predictions.			
4.1.1.4	Critically analyze data visualizations, including tables, double bar graphs, timelines, line plots or spreadsheets to support a claim and solve contextual situations.	4A	9	1–4
Chance and Uncertainty				
4.1.2.1	Classify probability events involving dice, coins, spinners with equal and unequal partitions and blocks in a bag as impossible, certain, likely, unlikely and equally likely. Probability is not covered in DM 1–5.			
4.1.2.2	Use a number line to connect the values of 0 to impossible, 1/2 to equally likely, and 1 to certain. Approximate locations on the number line where likely and unlikely would occur based on the situation.			

Standard	Standard Description	DM	Chapter	Lesson
Spatial Reasoning				
Measurement				
4.2.3.1	Classify angles as acute, right and obtuse by estimation, comparison with a right angle and by measurement.	3B	12	2, 3
		4B	15	1
4.2.3.2	Determine lengths to the nearest sixteenth of an inch when measuring with inches and to the nearest tenth of a centimeter when measuring in centimeters. Measuring to a 1/16 of an inch is not specifically covered in DM.	4B	12	1
4.2.3.3	Measure angles with a protractor.	4B	15	2
4.2.3.4	Determine the perimeter and area of two-dimensional figures and label with appropriate units.	3B	13	1, 2, 6
4.2.3.5	Find the areas of geometric figures that can be decomposed into rectangular shapes using tools like dot or grid paper. Label area measurements using square units.	3B	13	4
4.2.3.6	Explain why the area of a rectangle can be calculated by multiplying the length by the width and use the formula $A=l \times w$ to calculate the area of rectangles with whole number side lengths.	3B	13	3
4.2.3.7	Make change up to $20 with place values, using $ and ¢ symbols appropriately.	2B	10	3
Geometry				
4.2.4.1	Draw points, lines, line segments, rays, angles and perpendicular and parallel lines. Identify these in two-dimensional figures. Points, line segments, and rays are defined in the DM Teacher's Guide only with a supplementary activity.	4B	16	1–3

Standard	Standard Description	DM	Chapter	Lesson
4.2.4.2	Create representations of triangles given the relationships among the sides (scalene, isosceles, equilateral) and the angles (acute, right, obtuse).	3B	12	4, 5
		4B	16	5
4.2.4.3	Sort and classify quadrilaterals in a hierarchy, including squares, rectangles, trapezoids, rhombuses, parallelograms and kites. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	4B	16	4
4.2.4.4	Create a representation and describe the front, top and side views of three-dimensional figures composed of cubes and rectangular prisms.	1A	8	1
4.2.4.5	Draw the nets of cubes. Recognize nets that will and will not form cubes.	4B	17	2
Patterns and Relationships				
Number Relationships				
4.3.5.1	Recognize that in a multi-digit whole number, a digit in one place represents 10 times what it represents in the place to its right.	3A	1	1, 2, 7
4.3.5.2	Compare and order whole numbers from 0 to 1,000,000 with place value understanding, number lines and other tools using >, = and < symbols to record the results of comparisons.	4A	1	4
4.3.5.3	Estimate sums and differences, within 1,000,000 using strategies based on place value, approximation and properties of operations.	4A	2	1, 2
4.3.5.4	Estimate products and quotients of multi-digit whole numbers by using simple multiplicative relationships, approximation and place value to assess the reasonableness of results.	4A	4	3, 6, 7, 8
			5	2, 3, 4

Standard	Standard Description	DM	Chapter	Lesson
4.3.5.5	Fluently multiply two numbers from 0 to 12 using flexible strategies based on the associative, commutative and distributive properties of multiplication. Students multiply when one of the factors is 2, 3, 4, 5, or 10 in DM 2, and when both factors are 0 to 10 in DM 3. They multiply by 11 or 12 in DM 4 in the context of learning to multiply by a 2-digit number. By DM 4, it is assumed they can fluently multiply one-digit numbers.	2A	7	1–7
		2B	9	1–9
		3A	4	1, 2, 4
		3A	5	1–10
		3B	8	1, 2, 6, 7
4.3.5.6	Use place value language to describe how to multiply a number by 10, 100 and 1,000.	3A	5	1
		4A	7	1
4.3.5.7	Flexibly decompose numbers into addends or factors to multiply two two-digit numbers with a one-digit number, by and up to a four-digit number. Justify the strategy using equations, rectangular arrays and area models. Students multiply two- and three-digit numbers by a one-digit number in DM 3 and extend that to multiplying four- and five- digit numbers by a one-digit number and multiplying two-, three-, and four-digit numbers by a two-digit number in DM 4.	3A	5	1–9
		3B	8	2, 8
		4A	4	1–6
4.3.5.8	Solve contextual situations using division with dividends up to the thousands place and using one-digit divisors. Strategies may include using visual models, partial quotients, the commutative, associative and distributive properties and repeated subtraction.	3A	6	1–9
		3B	8	2, 8
		4A	5	1, 2, 3
4.3.5.9	Solve multi-step contextual situations requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between	4A	2	5, 6
			4	4, 8
			5	5, 6, 7

Standard	Standard Description	DM	Chapter	Lesson
	operations, the use of technology and the context of the situation to assess the reasonableness of results. Technology is not used in DM 1-5 to check calculations.			
4.3.5.10	Read, write, represent and plot on a number line fractional values between 0 and 3, including mixed numbers and fractions greater than 1 with denominators of 2, 3, 4, 5, 6, 8, 10 and 12. Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. Denominators are not restricted to 2, 3, 4, 5, 6, 8, 10 and 12 in DM.	3B	9	2
		4A	10	1,2, 3
4.3.5.11	Explain why a fraction a/b is equivalent to the product a x 1/b using visual models and language.	3B	9	1, 2
		4A	8	11
4.3.5.12	Explain why a fraction a/b is equivalent to a fraction (n x a)/(n x b) by using visual models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	3B	10	1, 2
		4A	6	1
4.3.5.13	Compare and order fractions between 0 and 3 and justify reasoning using pictures, position on a number line and selecting, when appropriate, among the strategies such as using a common numerator, referencing a benchmark and using a common denominator.	3B	10	4, 5
		4A	6	2, 3, 4
4.3.5.14	Recognize the relationship between decimals and fractions. Read and write decimals and fractions in both decimal and fraction notations using words, symbols and expanded form. Recall the	4B	12	1–7

Standard	Standard Description	DM	Chapter	Lesson
	fraction and decimal equivalent forms of one-half, one-quarter and three-quarters.			
4.3.5.15	Compare and order decimal values to the hundredths and justify using place value language, a number line and models such as dimes, pennies, 10 x 10 grids and base 10 blocks. Use place value concepts to name and model equivalent forms of decimal values.	4B	12	8
4.3.5.16	Use visual models to add and subtract fractions with denominators of 2, 4 and 8 with results up to 2. Students add and subtract fractions with like denominators in DM 3, and with related denominators (one denominator is a multiple of the other) in DM 4, including mixed numbers. Denominators are not restricted to 2, 4, or 8 nor results up to 2.	3B	10	7, 8, 9
		4A	7	1–7
4.3.5.17	Use the four operations to make financial decisions based on income, spending, saving, credit and charitable giving.			
Equivalence and Relational Thinking				
4.3.6.1	Use relational thinking to find a missing value in an open number sentence with multi-digit whole number multiplication and division expressions. Determine if the equation is true or false and justify your reasoning.	4A	4	2–8
			5	1–4
4.3.6.2	Make conjectures and justifications using the distributive property to justify multi-digit multiplication with true/false and open number equations. Students use the distributive property, and have problems where they compare expressions, but are not asked true/false questions in DM 4.	4A	4	2–8

Standard	Standard Description	DM	Chapter	Lesson
Patterns and Relationships				
4.3.7.1	Develop an explicit rule that generalizes a visual pattern relating the figure number with the number of items in that figure. Use the rule to find the number of items in figure *n*.	5B	12	5
4.3.7.2	Use words to write a rule for multiplicative patterns to solve contextual situations. Compare and contrast pattern rules that are additive and multiplicative, using a variety of strategies including tables, drawings and algebraic equations with a symbol for the unknown number to represent the situation.			
4.3.7.3	Generate a number or shape pattern that follows a given descriptive rule. Identify and explain apparent features of the pattern that were not explicit in the rule itself.	5B	12	5

Grade 5

Standard	Standard Description	DM	Chapter	Lesson
Data Analysis				
Data Sciences				
5.1.1.1	Notice and describe patterns in data-rich situations or given related data sets that are descriptive and comparative. Ask meaningful statistical questions that can be answered with data.	4A	9	1–4
		5B	12	3
5.1.1.2	Compare and contrast between qualitative and quantitative data.			
5.1.1.3	Collect and organize data to answer statistical questions and analyze measures of center (mean and median) and variability (range). Represent data in a variety of ways, including technology. Only average (mean) is covered in DM 5. Median and mode is not covered until DM 6.	4A	9	1–4
		5B	12	1–3
		6B	13	1, 2
5.1.1.4	Critically analyze data visualizations using measures of center and variability, including but not limited to double-bar graphs, line graphs and line plots to support a claim and solve situations.	4A	9	1–4
		5B	12	3
5.1.1.5	Compare and contrast different data displays to determine how the visualizations impact analysis and interpretation.	6B	13	1, 2
Chance and Uncertainty				
5.1.2.1	List outcomes from a probability experiment in a frequency table. Probability is not covered in DM 1–6.			
5.1.2.2	Use a frequency table to record results from an experiment to make predictions. Place predictions on a number line from 0 to 1.			

Standard	Standard Description	DM	Chapter	Lesson
Spatial Reasoning				
Measurement				
5.2.3.1	Develop, justify and use formulas to determine the area of parallelograms and triangles. Find the areas of polygons that can be decomposed into parallelograms and triangles.	5A	7	4–6
		6B	11	1–3
5.2.3.2	Estimate the area of two-dimensional shapes, both polygons and non-polygons, using tools such as dot or grid paper.			
5.2.3.3	Use unit cubes to measure volume. Describe a unit cube as a cube with side length 1 unit that is said to have "one cubic unit" of volume and can be used to measure volume.	5A	8	1
5.2.3.4	Use various strategies to measure the volume and surface area of three-dimensional shapes made of a collection of unit cubes. Surface area is not covered in DM 5.	5A	8	1
		6B	12	1, 2
5.2.3.5	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes. Show that the volume is the same by unit cubes as by multiplying the edge lengths (l x w x h) or by multiplying the height by the area of the base.	5A	8	2
Geometry				
5.2.4.1	Classify and describe prisms and pyramids by their defining attributes and the number of edges, faces, vertices and bases.	6B	12	1, 2
5.2.4.2	Recognize, draw and compare different nets for prisms, pyramids, cylinders and cones.	6B	12	1, 2

Standard	Standard Description	DM	Chapter	Lesson
Patterns and Relationships				
Number Relationships				
5.3.5.1	Multiply two multi-digit numbers using an efficient strategy. Strategies include decomposing factors into factors, decomposing factors into sums or using an area model. Justify the chosen strategy using properties of operations and place value.	4A	4	6, 7
		5A	3	1, 2, 3
5.3.5.2	Divide multi-digit numbers by a one-digit or two-digit divisor using efficient and generalizable procedures based on knowledge of place value and the properties of operations that may include partial quotients and standard algorithms. Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction, a mixed number or a decimal. Students divide three-digit numbers by a one-digit number in 3A, four- and five-digit numbers by a one-digit number in DM 4, and multi-digit numbers by a two-digit number in DM 5.	3A	6	1–7
		4A	5	1–7
		5A	3	4–9
5.3.5.3	Consider the context of a problem involving division to select the most useful form of the quotient and the remainder. Students learn to express the remainder as a fraction in DM 4 and 5, and as a decimal in DM 4 and DM 5.	4A	6	7
		5A	4	1
		4B	14	5–9
		5B	10	6–10
5.3.5.4	Solve multi-step contextual situations 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	4A	2	5, 6
			4	4, 8
			5	5, 6, 7
		5A	2	5, 6
			3	3, 9

Standard	Standard Description	DM	Chapter	Lesson
	situation to assess the reasonableness of results. Technology is not used for calculating with whole numbers in DM 5.			
5.3.5.5	Generate equivalent fractions of the form a/b = (n × a)/(n × b) and a/b = (a ÷ n)/ (b ÷ n) and justify relationships using visual models.	3B	10	1–6
		4A	6	1
5.3.5.6	Given a value, mentally find 0.1 more or 0.1 less, 0.01 more or 0.01 less and 0.001 more or 0.001 less than the number. Justify reasoning by referencing a visual model.	4B	13	1, 5, 6
		5B	10	1, 2
5.3.5.7	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 110 of what it represents in the place to its left.	5A	1	1
		5B	9	6, 7
5.3.5.8	Recognize and flexibly generate equivalences between fractions and decimals to the thousandths place and justify using visual models, place value language and symbols.	4B	12	5, 6
		5B	9	1
5.3.5.9	Compare and order decimal values to the thousandths. Justify using place value language and visual models.	5B	9	3
5.3.5.10	Estimate sums and differences of fractions and mixed numbers to the nearest half. Justify reasoning using benchmarks.	5A	4	1, 2
5.3.5.11	Fluently add and subtract fractions with unlike denominators (including mixed numbers) and justify using equivalent fractions, visual models and the number line. Students add and subtract decimals with related denominators in DM 4.	4A	7	1–7
		5A	4	1–7

Standard	Standard Description	DM	Chapter	Lesson
5.3.5.12	Estimate sums and differences of decimals.	4B	13	1–9
		5B	10	1, 2
5.3.5.13	Solve contextual situations using addition and subtraction of positive rational numbers represented as fractions (including mixed numbers) or decimals using visual models, equations and properties of operations.	4A	7	1–7
		4B	13	1–9
		5A	4	1–7
		5B	10	1, 2
5.3.5.14	Represent multiplication of a whole number of fractional groups n x a/b, using visual models, including a number line, and explain how the picture shows the product.	4A	8	1, 2, 3
		5A	5	1, 2
5.3.5.15	Represent contextual multiplication situations of a fractional amount of a whole number amount, a/b of a group of *n*, using visual models, including a number line, and explain how the picture shows the product.	4A	8	4–7
		5A	5	1
5.3.5.16	Represent contextual measurement situations using division of the form n ÷ a/b where *n* is the total and a/b is the amount per group. Use a visual model and explain how the picture shows the number of groups.	5A	6	4, 5
5.3.5.17	Solve multi-step contextual situations using addition and subtraction of positive rational numbers. Use various strategies, including the inverse relationships between operations and the context of the situation, to assess the reasonableness of results.	4A	7	7
		5A	4	4, 9
5.3.5.18	Use the four operations to compare and contrast different ways of paying and receiving payments. Identify the advantages and disadvantages of each method of payment, including checks, credit cards, debit cards and electronic payments.			

Standard	Standard Description	DM	Chapter	Lesson
5.3.5.19	Use the four operations to create an individual or group budget based on wants and needs and explore examples of debt and manageability of debt and its long-term impact.			
Equivalence and Relational Thinking				
5.3.6.1	Use relational thinking to find a missing value in an open number sentence with addition and subtraction of fractions and decimal expressions. Determine if the equation is true or false and justify the reasoning.	5A	4	1–9
			10	1, 2
5.3.6.2	Make conjectures and justifications about numerical expressions involving parentheses and the four operations using the properties of operations, properties of algebra, decomposition and composition to generate equivalent numerical expressions.	5A	2	1–7
Patterns and Relationships				
5.3.7.1	Use a rule or table to represent ordered pairs of positive integers and graph these ordered pairs on a coordinate system.	5B	12	4
5.3.7.2	Use ratio tables with whole numbers to solve situations with additive and multiplicative reasoning. Interpret multiplication as scaling.	5A	5	2, 6
5.3.7.3	Develop an explicit rule that generalizes a visual pattern relating the figure number with the number of items in that figure. Use the rule to find the number of items in figure *n*.	5B	12	5