Virginia Mathematics

Grade 3

Number and Number Sense	**NS.1**	**The student will use place value understanding to read, write, and determine the place and value of each digit in a whole number, up to six digits, with and without models.** 3.NS.1
	NS.2	**The student will demonstrate an understanding of the base 10 system to compare and order whole numbers up to 9,999.** 3.NS.2
	NS.3	**The student will use mathematical reasoning and justification to represent and compare fractions (proper and improper) and mixed numbers with denominators of 2, 3, 4, 5, 6, 8, and 10), including those in context.** 3.NS.3
	NS.4	**The student will solve problems, including those in context, that involve counting, comparing, representing, and making change for money amounts up to $5.00.** 3.NS.4
Read and write six-digit whole numbers in standard form, expanded form, and word form. 3.NS.1.A	**a**	**Read and write six-digit whole numbers in standard form, expanded form, and word form.** 3.NS.1.A
Apply patterns within the base 10 system to determine and communicate, orally and in written form, the place and value of each digit in a six-digit whole number (e.g., in 165,724, the 5 represents 5 thousands and its value is 5,000). 3.NS.1.B	**b**	**Apply patterns within the base 10 system to determine and communicate, orally and in written form, the place and value of each digit in a six-digit whole number (e.g., in 165,724, the 5 represents 5 thousands and its value is 5,000).** 3.NS.1.B
Compose, decompose, and represent numbers up to 9,999 in multiple ways, according to place value (e.g., 256 can be 1 hundred, 14 tens, 16 ones, but also 25 tens, 6 ones), with and without models. 3.NS.1.C	**c**	**Compose, decompose, and represent numbers up to 9,999 in multiple ways, according to place value (e.g., 256 can be 1 hundred, 14 tens, 16 ones, but also 25 tens, 6 ones), with and without models.** 3.NS.1.C

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ones), with and without models. 3.NS.1.C	
Compare two whole numbers, each 9,999 or less, using symbols (>, <, =, ≠) and/or words (greater than, less than, equal to, not equal to), with and without models. 3.NS.2.A	a Compare two whole numbers, each 9,999 or less, using symbols (>, <, =, ≠) and/or words (greater than, less than, equal to, not equal to), with and without models. 3.NS.2.A
Order up to three whole numbers, each 9,999 or less, represented with and without models, from least to greatest and greatest to least. 3.NS.2.B	b Order up to three whole numbers, each 9,999 or less, represented with and without models, from least to greatest and greatest to least. 3.NS.2.B
Represent, name, and write a given fraction (proper or improper) or mixed number with denominators of 2, 3, 4, 5, 6, 8, and 10 using: 3.NS.3.A	i region/area models (e.g., pie pieces, pattern blocks, geoboards); 3.NS.3.A.I ii length models (e.g., paper fraction strips, fraction bars, rods, number lines); and 3.NS.3.A.II iii set models (e.g., chips, counters, cubes). 3.NS.3.A.III
Identify a fraction represented by a model as the sum of unit fractions. 3.NS.3.B	b Identify a fraction represented by a model as the sum of unit fractions. 3.NS.3.B
Use a model of a fraction greater than one to count the fractional parts to name and write it as an improper fraction and as a mixed number (e.g., $1\frac{4}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4}, \frac{5}{4} = 1\frac{1}{4}$). 3.NS.3.C	c Use a model of a fraction greater than one to count the fractional parts to name and write it as an improper fraction and as a mixed number (e.g., $1\frac{4}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4}, \frac{5}{4} = 1\frac{1}{4}$). 3.NS.3.C
Compose and decompose fractions (proper and improper) wi 3, multiple ways (e.g., 7 4 =	d Compose and decompose fractions (proper and improper) with denominators of 2, 3, 4, 5, 6, 8, and 10 in multiple ways (e.g., $7\frac{4}{4} = 4\frac{4}{4} + 3\frac{4}{4}$ or $4\frac{6}{6} = 3\frac{6}{6} + 1\frac{6}{6} = 2\frac{6}{6} + 2\frac{6}{6}$) with models. 3.NS.3.D

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4 4 + 3 4 or 4 6 = 3 6 + 1 6 = 2 6 + 2 6) with models. 3.NS.3.D	
Compare a fraction, less than or equal to one, to the benchmarks of 0, 1 2 , and 1 using area/region models, length models, and without models. 3.NS.3.E	e Compare a fraction, less than or equal to one, to the benchmarks of 0, 1 2 , and 1 using area/region models, length models, and without models. 3.NS.3.E
Compare two fractions (proper or improper) and/or mixed numbers with like numerators of 2, 3, 4, 5, 6, 8, and 10 (e.g., 2 3 > 2 8) using words (greater than, less than, equal to) and/or symbols (>, <, =), using area/region models, length models, and without models. 3.NS.3.F	f Compare two fractions (proper or improper) and/or mixed numbers with like numerators of 2, 3, 4, 5, 6, 8, and 10 (e.g., 2 3 > 2 8) using words (greater than, less than, equal to) and/or symbols (>, <, =), using area/region models, length models, and without models. 3.NS.3.F
Compare two fractions (proper or improper) and/or mixed numbers with like denominators of 2, 3, 4, 5, 6, 8, and 10 (e.g., 3 6 < 4 6) using words (greater than, less than, equal to) and/or symbols (>, <, =), using area/region models, length models, and without models. 3.NS.3.G	g Compare two fractions (proper or improper) and/or mixed numbers with like denominators of 2, 3, 4, 5, 6, 8, and 10 (e.g., 3 6 < 4 6) using words (greater than, less than, equal to) and/or symbols (>, <, =), using area/region models, length models, and without models. 3.NS.3.G
Represent equivalent fractions with denominators of 2, 3, 4, 5, 6, 8, or 10, using region/area models and length models. 3.NS.3.H	h Represent equivalent fractions with denominators of 2, 3, 4, 5, 6, 8, or 10, using region/area models and length models. 3.NS.3.H

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Determine the value of a collection of bills and coins whose total is $5.00 or less. 3.NS.4.A	**a** **Determine the value of a collection of bills and coins whose total is $5.00 or less.** 3.NS.4.A
Construct a set of bills and coins to total a given amount of money whose value is $5.00 or less. 3.NS.4.B	**b** **Construct a set of bills and coins to total a given amount of money whose value is $5.00 or less.** 3.NS.4.B
Compare the values of two sets of coins or two sets of bills and coins, up to $5.00, with words (greater than, less than, equal to) and/or symbols (>, <, =) using concrete or pictorial models. 3.NS.4.C	**c** **Compare the values of two sets of coins or two sets of bills and coins, up to $5.00, with words (greater than, less than, equal to) and/or symbols (>, <, =) using concrete or pictorial models.** 3.NS.4.C
Solve contextual problems to make change from $5.00 or less by using counting on or counting back strategies with concrete or pictorial models. 3.NS.4.D	**d** **Solve contextual problems to make change from $5.00 or less by using counting on or counting back strategies with concrete or pictorial models.** 3.NS.4.D
Computation and Estimation	**CE.1** **The student will estimate, represent, solve, and justify solutions to single-step and multistep problems, including those in context, using addition and subtraction with whole numbers where addends and minuends do not exceed 1,000.** 3.CE.1
	CE.2 **The student will recall with automaticity multiplication and division facts through 10 × 10; and represent, solve, and justify solutions to single-step contextual problems using multiplication and division with whole numbers.** 3.CE.2
Determine and justify whether an estimate or an exact answer is appropriate when solving single-step and multistep contextual problems involving addition and subtraction, where	**a** **Determine and justify whether an estimate or an exact answer is appropriate when solving single-step and multistep contextual problems involving addition and subtraction, where addends and minuends do not exceed 1,000.** 3.CE.1.A

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addends and minuends do not exceed 1,000. 3.CE.1.A

Apply strategies (e.g., rounding to the nearest 10 or 100, using compatible numbers, using other number relationships) to estimate a solution for single-step or multistep addition or subtraction problems, including those in context, where addends or minuends do not exceed 1,000. 3.CE.1.B

b Apply strategies (e.g., rounding to the nearest 10 or 100, using compatible numbers, using other number relationships) to estimate a solution for single-step or multistep addition or subtraction problems, including those in context, where addends or minuends do not exceed 1,000. 3.CE.1.B

Apply strategies (e.g., place value, properties of addition, other number relationships) and algorithms, including the standard algorithm, to determine the sum or difference of two whole numbers where addends and minuends do not exceed 1,000. 3.CE.1.C

c Apply strategies (e.g., place value, properties of addition, other number relationships) and algorithms, including the standard algorithm, to determine the sum or difference of two whole numbers where addends and minuends do not exceed 1,000. 3.CE.1.C

Identify and use the appropriate symbol to distinguish between expressions that are equal and expressions that are not equal (e.g., 256 - 13 = 220 + 23; 457 + 100 ≠ 557 + 100). 3.CE.1.D

d Identify and use the appropriate symbol to distinguish between expressions that are equal and expressions that are not equal (e.g., 256 - 13 = 220 + 23; 457 + 100 ≠ 557 + 100). 3.CE.1.D

Represent, solve, and justify solutions to single-step and multistep contextual problems involving ad wi

e Represent, solve, and justify solutions to single-step and multistep contextual problems involving addition and subtraction with whole numbers where addends and minuends do not exceed 1,000. 3.CE.1.E

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where addends and minuends do not exceed 1,000. 3.CE.1.E	
Represent multiplication and division of whole numbers through 10 × 10, including in a contextual situation, using a variety of approaches and models (e.g., repeated addition/subtraction, equal-sized groups/sharing, arrays, equal jumps on a number line, using multiples to skip count). 3.CE.2.A	**a** Represent multiplication and division of whole numbers through 10 × 10, including in a contextual situation, using a variety of approaches and models (e.g., repeated addition/subtraction, equal-sized groups/sharing, arrays, equal jumps on a number line, using multiples to skip count). 3.CE.2.A
Use inverse relationships to write the related facts connected to a given model for multiplication and division of whole numbers through 10 × 10. 3.CE.2.B	**b** Use inverse relationships to write the related facts connected to a given model for multiplication and division of whole numbers through 10 × 10. 3.CE.2.B
Apply strategies (e.g., place value, the properties of multiplication and/or addition) when multiplying and dividing whole numbers. 3.CE.2.C	**c** Apply strategies (e.g., place value, the properties of multiplication and/or addition) when multiplying and dividing whole numbers. 3.CE.2.C
Demonstrate fluency with multiplication facts through 10 × 10 by applying reasoning strategies (e.g., doubling, add-a-group, subtract-a-group, near squares, and inverse rel	**d** Demonstrate fluency with multiplication facts through 10 × 10 by applying reasoning strategies (e.g., doubling, add-a-group, subtract-a-group, near squares, and inverse relationships). 3.CE.2.D

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Represent, solve, and justify solutions to single-step contextual problems that involve multiplication and division of whole numbers through 10 × 10. 3.CE.2.E	**e**	**Represent, solve, and justify solutions to single-step contextual problems that involve multiplication and division of whole numbers through 10 × 10.** 3.CE.2.E
Recall with automaticity the multiplication facts through 10 × 10 and the corresponding division facts. 3.CE.2.F	**f**	**Recall with automaticity the multiplication facts through 10 × 10 and the corresponding division facts.** 3.CE.2.F
Create an equation to represent the mathematical relationship between equivalent expressions using multiplication and/or division facts through 10 × 10 (e.g., 4 × 3 = 14 - 2, 35 ÷ 5 = 1 × 7). 3.CE.2.G	**g**	**Create an equation to represent the mathematical relationship between equivalent expressions using multiplication and/or division facts through 10 × 10 (e.g., 4 × 3 = 14 - 2, 35 ÷ 5 = 1 × 7).** 3.CE.2.G
Measurement and Geometry	**MG.1**	**The student will reason mathematically using standard units (U.S. Customary and metric) with appropriate tools to estimate and measure objects by length, weight/mass, and liquid volume to the nearest half or whole unit.** 3.MG.1
	MG.2	**The student will use multiple representations to estimate and solve problems, including those in context, involving area and perimeter (in both U.S. Customary and metric units).** 3.MG.2
	MG.3	**The student will demonstrate an understanding of the concept of time to the nearest minute and solve single-step contextual problems involving elapsed time in one-hour increments within a 12-hour period.** 3.MG.3
	MG.4	**The student will identify, describe, classify, compare, combine, and subdivide polygons.** 3.MG.4
Justify whether an estimate or an exact measurement is needed for a contextual situation and choose an ap un	**a**	**Justify whether an estimate or an exact measurement is needed for a contextual situation and choose an appropriate unit.** 3.MG.1.A

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Estimate and measure: 3.MG.1.B	**i** length of an object to the nearest U.S. Customary unit (1 2 inch, inch, foot, yard) and metric unit (centimeter, meter); 3.MG.1.B.I
	ii weight/mass of an object to the nearest U.S. Customary unit (pound) and metric unit (kilogram); and 3.MG.1.B.II
	iii liquid volume to the nearest U.S. Customary unit (cup, pint, quart, gallon) and metric unit (liter). 3.MG.1.B.III
Compare estimates of length, weight/mass, or liquid volume with the actual measurements. 3.MG.1.C	**c** Compare estimates of length, weight/mass, or liquid volume with the actual measurements. 3.MG.1.C
Solve problems, including those in context, involving area: 3.MG.2.A	**i** describe and give examples of area as a measurement in contextual situations; and 3.MG.2.A.I
	ii estimate and determine the area of a given surface by counting the number of square units, describe the measurement (using the number and unit) and justify the measurement. 3.MG.2.A.II
Solve problems, including those in context, involving perimeter: 3.MG.2.B	**i** describe and give examples of perimeter as a measurement in contextual situations; 3.MG.2.B.I
	ii estimate and measure the distance around a polygon (with no more than six sides) to determine the perimeter and justify the measurement; and 3.MG.2.B.II
	iii given the lengths of all sides of a polygon (with no more than six sides), determine its perimeter and justify the measurement. 3.MG.2.B.III
Tell and write time to the nearest minute, using analog and digital clocks. 3.MG.3.A	**a** Tell and write time to the nearest minute, using analog and digital clocks. 3.MG.3.A
Match a written time (e.g., 4:38, 7:09, 12:51) to the time shown on analog and digital clocks to the nearest minute. 3.MG.3.B	**b** Match a written time (e.g., 4:38, 7:09, 12:51) to the time shown on analog and digital clocks to the nearest minute. 3.MG.3.B
Solve single-step contextual problems inv in(wi	**i** the starting time and the ending time, determine the amount of time that has elapsed; 3.MG.3.C.I

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(within a.m. or within p.m.) when given: 3.MG.3.C	ii the starting time and amount of elapsed time in one-hour increments, determine the ending time; or 3.MG.3.C.II
	iii the ending time and the amount of elapsed time in one-hour increments, determine the starting time. 3.MG.3.C.III
Describe a polygon as a closed plane figure composed of at least three line segments that do not cross. 3.MG.4.A	a Describe a polygon as a closed plane figure composed of at least three line segments that do not cross. 3.MG.4.A
Classify figures as polygons or not polygons and justify reasoning. 3.MG.4.B	b Classify figures as polygons or not polygons and justify reasoning. 3.MG.4.B
Identify and describe triangles, quadrilaterals, pentagons, hexagons, and octagons in various orientations, with and without contexts. 3.MG.4.C	c Identify and describe triangles, quadrilaterals, pentagons, hexagons, and octagons in various orientations, with and without contexts. 3.MG.4.C
Identify and name examples of polygons (triangles, quadrilaterals, pentagons, hexagons, octagons) in the environment. 3.MG.4.D	d Identify and name examples of polygons (triangles, quadrilaterals, pentagons, hexagons, octagons) in the environment. 3.MG.4.D
Classify and compare polygons (triangles, quadrilaterals, pentagons, hexagons, octagons). 3.MG.4.E	e Classify and compare polygons (triangles, quadrilaterals, pentagons, hexagons, octagons). 3.MG.4.E
Combine no more than three polygons, where each has three or four sides, and name the resulting polygon (triangles, qu pe octagons). 3.MG.4.F	f Combine no more than three polygons, where each has three or four sides, and name the resulting polygon (triangles, quadrilaterals, pentagons, hexagons, octagons). 3.MG.4.F

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Subdivide a three-sided or four-sided polygon into no more than three parts and name the resulting polygons. 3.MG.4.G	**g** **Subdivide a three-sided or four-sided polygon into no more than three parts and name the resulting polygons.** 3.MG.4.G
Probability and Statistics	**PS.1** **The student will apply the data cycle (formulate questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on pictographs and bar graphs.** 3.PS.1
Formulate questions that require the collection or acquisition of data. 3.PS.1.A	**a** **Formulate questions that require the collection or acquisition of data.** 3.PS.1.A
Determine the data needed to answer a formulated question and collect or acquire existing data (limited to 30 or fewer data points for no more than eight categories) using various methods (e.g., polls, observations, tallies). 3.PS.1.B	**b** **Determine the data needed to answer a formulated question and collect or acquire existing data (limited to 30 or fewer data points for no more than eight categories) using various methods (e.g., polls, observations, tallies).** 3.PS.1.B
Organize and represent a data set using pictographs that include an appropriate title, labeled axes, and key. Each pictograph symbol should represent 1, 2, 5 or 10 data points. 3.PS.1.C	**c** **Organize and represent a data set using pictographs that include an appropriate title, labeled axes, and key. Each pictograph symbol should represent 1, 2, 5 or 10 data points.** 3.PS.1.C
Organize and represent a data set using bar graphs with a title and labeled axes, with and without the use of technology tools. Determine and use an ap (in	**d** **Organize and represent a data set using bar graphs with a title and labeled axes, with and without the use of technology tools. Determine and use an appropriate scale (increments limited to multiples of 1, 2, 5 or 10).** 3.PS.1.D

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multiples of 1, 2, 5 or 10). 3.PS.1.D	
Analyze data represented in pictographs and bar graphs, and communicate results orally and in writing: 3.PS.1.E	i describe the categories of data and the data as a whole (e.g., data were collected on preferred ways to cook or prepare eggs - scrambled, fried, hard boiled, and egg salad); 3.PS.1.E.I
	ii identify parts of the data that have special characteristics, including categories with the greatest, the least, or the same (e.g., most students prefer scrambled eggs); 3.PS.1.E.II
	iii make inferences about data represented in pictographs and bar graphs; 3.PS.1.E.III
	iv use characteristics of the data to draw conclusions about the data and make predictions based on the data (e.g., it is unlikely that a third grader would like hard boiled eggs); and 3.PS.1.E.IV
	v solve one- and two-step addition and subtraction problems using data from pictographs and bar graphs. 3.PS.1.E.V
Patterns, Functions, and Algebra	PFA.1 The student will identify, describe, extend, and create increasing and decreasing patterns (limited to addition and subtraction of whole numbers), including those in context, using various representations. 3.PFA.1
Identify and describe increasing and decreasing patterns using various representations (e.g., objects, pictures, numbers, number lines). 3.PFA.1.A	a Identify and describe increasing and decreasing patterns using various representations (e.g., objects, pictures, numbers, number lines). 3.PFA.1.A
Analyze an increasing or decreasing pattern and generalize the change to extend the pattern or identify missing terms using various representations. 3.PFA.1.B	b Analyze an increasing or decreasing pattern and generalize the change to extend the pattern or identify missing terms using various representations. 3.PFA.1.B
Solve contextual problems that involve identifying, describing, and extending pa	c Solve contextual problems that involve identifying, describing, and extending patterns. 3.PFA.1.C

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Create increasing and decreasing patterns using objects, pictures, numbers, and number lines. 3.PFA.1.D	**d** **Create increasing and decreasing patterns using objects, pictures, numbers, and number lines.** 3.PFA.1.D
Investigate and explain the connection between two different representations of the same increasing or decreasing pattern. 3.PFA.1.E	**e** **Investigate and explain the connection between two different representations of the same increasing or decreasing pattern.** 3.PFA.1.E