GRADES 2–8

VMath Third Edition, Levels C–I, Grades 2–8

Correlated to the South Carolina College - and Career - Ready Standards for Mathematics

April 2015

VOYAGER SOPRIS LEARNING®

South Carolina College- and Career-Ready Standards for Mathematics	*VMath, Level C*
Grade 2	
Mathematical Process Standards	
1. Make sense of problems and persevere in solving them.	Module 3: Lesson 4: 156-159 Module 4: Lesson 7: 220-223
2. Reason both contextually and abstractly.	Module 1: Lesson 7: 62-65 Module 1: Lesson 10: 74-77 Module 2: Lesson PL2: 88-91
3. Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.	Module 1: Lesson 7: 62-65 Module 1: Lesson 10: 74-77 Module 2: Lesson PL2: 88-91 Module 3: Lesson PL2: 140-143
4. Connect mathematical ideas and real-world situations through modeling.	Module 1: Lesson 2: 42-45 Module 1: Lesson 4: 50-53 Module 1: Lesson 5: 54-57 Module 1: Lesson 6: 58-61
5. Use a variety of mathematical tools effectively and strategically.	Module 4: Lesson PL1: 188-191 Module 4: Lesson PL 2: 192-195
6. Communicate mathematically and approach mathematical situations with precision.	Module 2: Lesson PL1: 84-87 Module 3: Lesson PL1: 136-139
7. Identify and utilize structure and patterns.	Module 1: Lesson 1: 38-41 Module 1: Lesson 2: 42-45 Module 1: Lesson 3: 46-49 Module 1: Lesson 10: 74-77 Module 2: Lesson 7: 116-119 Module 7: Lesson 8: 392-395
Number Sense and Base Ten	
2.NSBT.1 Understand place value through 999 by demonstrating that:	
a. 100 can be thought of as a bundle (group) of 10 tens called a “hundred”;	
b. the hundreds digit in a three-digit number represents the number of hundreds, the tens digit represents the number of tens, and the ones digit represents the number of ones;	Module 1: Lesson 6: 58-61
c. three-digit numbers can be decomposed in multiple ways (e.g., 524 can be decomposed as 5 hundreds, 2 tens and 4 ones or 4 hundreds, 12 tens, and 4 ones, etc.).	Module 1: Lesson 6: 58-61
2.NSBT.2 Count by tens and hundreds to 1,000 starting with any number.	Module 1: Lesson 3: 46-49
2.NSBT.3 Read, write and represent numbers through 999 using concrete models, standard form, and equations in expanded form.	Module 1: Lesson 4: 50-53 Module 1: Lesson 5: 54-57 Module 1: Lesson 6: 58-61 Module 1: Lesson 7: 62-65
2.NSBT.4 Compare two numbers with up to three digits using words and symbols (i.e., >, =, or <).	Module 1: Lesson 5: 54-57 Module 1: Lesson 6: 58-61
2.NSBT.5 Add and subtract fluently through 99 using knowledge of place value and properties of operations.	Module 2: Lesson 1: 92-95 Module 2: Lesson 2: 96-99 Module 2: Lesson 3: 100-103

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	Module 2: Lesson 4: 104-107 Module 2: Lesson 5: 108-111 Module 2: Lesson 6: 112-115 Module 2: Lesson 9: 124-127 Module 2: Lesson 10: 128-131 Module 3: Lesson 1: 144-147 Module 3: Lesson 2: 148-151 Module 3: Lesson 3: 152-155 Module 3: Lesson 4: 156-159 Module 3: Lesson 7: 168-171
2.NSBT.6 Add up to four two-digit numbers using strategies based on knowledge of place value and properties of operations.	Module 2: Lesson 1: 92-95 Module 2: Lesson 2: 96-99 Module 2: Lesson 3: 100-103 Module 2: Lesson 4: 104-107 Module 2: Lesson 5: 108-111 Module 2: Lesson 6: 112-115 Module 2: Lesson 9: 124-127 Module 2: Lesson 10: 128-131 Module 2: Lesson 10: 128-131 Module 3: Lesson 1: 144-147 Module 3: Lesson 2: 148-151 Module 3: Lesson 3: 152-155 Module 3: Lesson 4: 156-159
2.NSBT.7 Add and subtract through 999 using concrete models, drawings, and symbols which convey strategies connected to place value understanding.	Module 2: Lesson 1: 92-95 Module 2: Lesson 2: 96-99 Module 2: Lesson 3: 100-103 Module 2: Lesson 4: 104-107 Module 2: Lesson 5: 108-111 Module 2: Lesson 6: 112-115 Module 2: Lesson 9: 124-127 Module 2: Lesson 10: 128-131 Module 3: Lesson 1: 144-147 Module 3: Lesson 2: 148-151 Module 3: Lesson 3: 152-155 Module 3: Lesson 4: 156-159 Module 3: Lesson 9: 176-179 Module 3: Lesson 10: 180-183
2.NSBT.8 Determine the number that is 10 or 100 more or less than a given number through 1,000 and explain the reasoning verbally and in writing.	Module 2: Lesson 7: 116-119 Module 3: Lesson 5: 160-163
Algebraic Thinking and Operations	
2.ATO.1 Solve one- and two-step real-world/story problems using addition (as a joining action and as a part-part-whole action) and subtraction (as a separation action, finding parts	Module 3: Lesson 6: 164-167

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of the whole, and as a comparison) through 99 with unknowns in all positions.	
2.ATO.2 Demonstrate fluency with addition and related subtraction facts through 20.	Module 7: Lesson 7: 388-391
2.ATO.3 Determine whether a number through 20 is odd or even using pairings of objects, counting by twos, or finding two equal addends to represent the number (e.g., 3 + 3 = 6).	Module 1: Lesson 4: 50-53
2.ATO.4 Use repeated addition to find the total number of objects arranged in a rectangular array with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	Module 2: Lesson 8: 120-123
Geometry	
2.G.1 Identify triangles, quadrilaterals, hexagons, and cubes. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.	Module 5: Lesson 4: 262-265 Module 5: Lesson 5: 266-269 Module 5: Lesson 6: 270-273 Module 5: Lesson 7: 274-277 Module 5: Lesson 10: 286-289
2.G.2 Partition a rectangle into rows and columns of same-size squares to form an array and count to find the total number of parts.	Module 3: Lesson 8: 172-175 Module 5: Lesson 8: 278-281 Module 5: Lesson 9: 282-285 Module 7: Lesson 9: 396-399 Module 7: Lesson 10: 400-403
2.G.3 Partition squares, rectangles and circles into two or four equal parts, and describe the parts using the words *halves*, *fourths*, *a half of*, and *a fourth of*. Understand that when partitioning a square, rectangle or circle into two or four equal parts, the parts become smaller as the number of parts increases.	Module 3: Lesson 8: 172-175 Module 5: Lesson 8: 278-281 Module 5: Lesson 9: 282-285 Module 7: Lesson 1: 364-367 Module 7: Lesson 2: 368-371 Module 7: Lesson 3: 372-375 Module 7: Lesson 4: 376-379 Module 7: Lesson 5: 380-383 Module 7: Lesson 6: 384-387 Module 7: Lesson 9: 396-399 Module 7: Lesson 10: 400-403
Measurement and Data Analysis	
2.MDA.1 Select and use appropriate tools (e.g., rulers, yardsticks, meter sticks, measuring tapes) to measure the length of an object.	Module 4: Lesson 1: 196-199 Module 4: Lesson 3: 204-207 Module 4: Lesson 4: 208-211
2.MDA.2 Measure the same object or distance using a standard unit of one length and then a standard unit of a different length and explain verbally and in writing how and why the measurements differ.	Module 4: Lesson 5: 212-215
2.MDA.3 Estimate and measure length/distance in customary units (i.e., inch, foot, yard) and metric units (i.e., centimeter, meter).	Module 4: Lesson PL2: 192-195 Module 4: Lesson 3: 204-207
2.MDA.4 Measure to determine how much longer one object	Module 4: Lesson 2: 200-203

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is than another, using standard length units.	
2.MDA.5 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, …, and represent whole-number sums and differences through 99 on a number line diagram.	Module 4: Lesson 6: 216-219
2.MDA.6 Use analog and digital clocks to tell and record time to the nearest five-minute interval using *a.m.* and *p.m.*	Module 6: Lesson 1: 308-311
2.MDA.7 Solve real-world/story problems involving dollar bills using the $ symbol or involving quarters, dimes, nickels, and pennies using the ¢ symbol.	Module 5: Lesson 1: 250-253 Module 5: Lesson 2: 254-257 Module 5: Lesson 3: 258-261
2.MDA.8 Generate data by measuring objects in whole unit lengths and organize the data in a line plot using a horizontal scale marked in whole number units.	Module 6: Lesson 10: 344-347
2.MDA.9 Collect, organize, and represent data with up to four categories using picture graphs and bar graphs with a single-unit scale.	Module 4: Lesson 9: 228-231 Module 4: Lesson 10: 232-235
2.MDA.10 Draw conclusions from t-charts, object graphs, picture graphs, and bar graphs.	provides opportunities: Module 6: Lesson 5: 324-327 Module 6: Lesson 6: 328-331

South Carolina College- and Career-Ready Standards for Mathematics	*VMath, Level D*
Grade 3	
Mathematical Process Standards	
1. Make sense of problems and persevere in solving them.	Module 2: Lesson PL1: 86-89 Module 5: Lesson PL1: 264-267 Module 3: Lesson 15: 192-195 Module 5: Lesson 10: 304-307
2. Reason both contextually and abstractly.	Module 5: Lesson PL2: 268-270 Module 7: Lesson PL1: 360-363 Module 7: Lesson PL2: 364-367
3. Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.	Module 6: Lesson PL2: 316-319
4. Connect mathematical ideas and real-world situations through modeling.	Module 6: Lesson 2: 324-325
5. Use a variety of mathematical tools effectively and strategically.	Module 2: Lesson PL2: 90-93 Module 1: Lesson 3: 46-49 Module 7: Lesson LP2: 364-367
6. Communicate mathematically and approach mathematical situations with precision.	Module 3: Lesson PL1: 134-137 Module 3: Lesson PL2: 138-141
7. Identify and utilize structure and patterns.	Module 1: Lesson 1: 38-41 Module 1: Lesson 3: 46-49 Module 4: Lesson 4: 216-219
Number Sense and Base Ten	
3.NSBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.	Module 2: Lesson 8: 122-123 Module 2: Lesson 9: 124-128 Module 3: Lesson 7: 164-167 Module 3: Lesson 14: 188-191
3.NSBT.2 Add and subtract whole numbers fluently to 1,000 using knowledge of place value and properties of operations.	Module 3: Lesson 1: 142-145 Module 3: Lesson 2: 146-147 Module 3: Lesson 3: 148-151 Module 3: Lesson 4: 152-155 Module 3: Lesson 5: 156-159 Module 3: Lesson 6: 160-163 Module 3: Lesson 8: 168-169 Module 3: Lesson 9: 170-173 Module 3: Lesson 10: 174-175 Module 3: Lesson 11: 176-179 Module 3: Lesson 12: 180-183 Module 3: Lesson 13: 184-187 Module 3: Lesson 15: 192-195
3.NSBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10 – 90, using knowledge of place value and properties of operations.	Module 4: Lesson 13: 248-251
3.NSBT.4 Read and write numbers through 999,999 in standard form and equations in expanded form.	Module 1: Lesson 5: 54-57 Module 1: Lesson 6: 58-61 Module 1: Lesson 7: 62-65 Module 2: Lesson 2: 98-101
3.NSBT.5 Compare and order numbers through 999,999 and represent the comparison using the symbols >, =, or <.	Module 2: Lesson 6: 114-117 Module 2: Lesson 7: 118-121

South Carolina College- and Career-Ready Standards for Mathematics	*VMath, Level D*
Grade 3	
3.NSF.1 Develop an understanding of fractions (i.e., denominators 2, 3, 4, 6, 8, 10) as numbers.	
a. A fraction 1□□ (called a unit fraction) is the quantity formed by one part when a whole is partitioned into □□ equal parts;	provides opportunities: Module 6: Lesson 1: 320-323 Module 6: Lesson 2: 324-325
b. A fraction □□□□ is the quantity formed by □□ parts of size 1□□;	provides opportunities: Module 6: Lesson 1: 320-323 Module 6: Lesson 2: 324-325
c. A fraction is a number that can be represented on a number line based on counts of a unit fraction;	Module 6: Lesson 8: 244-247
d. A fraction can be represented using set, area, and linear models.	Module 6: Lesson 2: 324-325 Module 6: Lesson 3: 326-329
Number–Fractions	
3.NSF.2 Explain fraction equivalence (i.e., denominators 2, 3, 4, 6, 8, 10) by demonstrating an understanding that:	
a. two fractions are equal if they are the same size, based on the same whole, or at the same point on a number line;	Module 6: Lesson 6: 336-339
b. fraction equivalence can be represented using set, area, and linear models;	Module 6: Lesson 5: 334-335 Module 6: Lesson 6: 336-339
c. whole numbers can be written as fractions (e.g., 4= 41 and 1= 44);	
d. fractions with the same numerator or same denominator can be compared by reasoning about their size based on the same whole.	Module 2: Lesson 6: 114-117
3.NSF.3 Develop an understanding of mixed numbers (i.e., denominators 2, 3, 4, 6, 8, 10) as iterations of unit fractions on a number line.	
Algebraic Thinking and Operations	
3.ATO.1 Use concrete objects, drawings and symbols to represent multiplication facts of two single-digit whole numbers and explain the relationship between the factors (i.e., 0 – 10) and the product.	Module 4: Lesson PL2: 204-206 Module 4: Lesson 10: 240-241
3.ATO.2 Use concrete objects, drawings and symbols to represent division without remainders and explain the relationship among the whole number quotient (i.e., 0 – 10), divisor (i.e., 0 – 10), and dividend.	Module 5: Lesson PL2: 268-270
3.ATO.3 Solve real-world problems involving equal groups, area/array, and number line models using basic multiplication and related division facts. Represent the problem situation using an equation with a symbol for the unknown.	Module 5: Lesson 9: 300-303 Module 6: Lesson PL1: 312-315
3.ATO.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is a missing factor, product, dividend, divisor, or quotient.	Module 5: Lesson 8: 296-299
3.ATO.5 Apply properties of operations (i.e., Commutative Property of Multiplication, Associative Property of Multiplication, Distributive Property) as strategies to multiply	Module 4: Lesson 11: 242-246

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Grade 3	
and divide and explain the reasoning.	
3.ATO.6 Understand division as a missing factor problem.	Module 5: Lesson 8: 296-299
3.ATO.7 Demonstrate fluency with basic multiplication and related division facts of products and dividends through 100.	Module 4: Lesson 5: 220-223 Module 4: Lesson 6: 224-227 Module 4: Lesson 7: 228-231 Module 4: Lesson 8: 232-235 Module 4: Lesson 9: 236-239 Module 5: Lesson 3: 276-279 Module 5: Lesson 4: 280-283 Module 5: Lesson 5: 284-287 Module 5: Lesson 7: 292-295
3.ATO.8 Solve two-step real-world problems using addition, subtraction, multiplication and division of whole numbers and having whole number answers. Represent these problems using equations with a letter for the unknown quantity.	Module 5: Lesson 10: 304-307
3.ATO.9 Identify a rule for an arithmetic pattern (e.g., patterns in the addition table or multiplication table).	Module 1: Lesson 1: 38-41 Module 4: Lesson 4: 216-219
Geometry	
3.G.1 Understand that shapes in different categories (e.g., rhombus, rectangle, square, and other 4-sided shapes) may share attributes (e.g., 4-sided figures) and the shared attributes can define a larger category (e.g., quadrilateral). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	Module 7: Lesson 11: 408-409 Module 7: Lesson 12: 410-413 Module 7: Lesson 13: 414-417
3.G.2 Partition two-dimensional shapes into 2, 3, 4, 6, or 8 parts with equal areas and express the area of each part using the same unit fraction. Recognize that equal parts of identical wholes need not have the same shape.	Module 6: Lesson 1: 320-323
3.G.3 Use a right angle as a benchmark to identify and sketch acute and obtuse angles.	
3.G.4 Identify a three-dimensional shape (i.e., right rectangular prism, right triangular prism, pyramid) based on a given two-dimensional net and explain the relationship between the shape and the net.	
Measurement and Data Analysis	
3.MDA.1 Use analog and digital clocks to determine and record time to the nearest minute, using *a.m.* and *p.m.*; measure time intervals in minutes; and solve problems involving addition and subtraction of time intervals within 60 minutes.	Module 7: Lesson 5: 384-387
3.MDA.2 Estimate and measure liquid volumes (capacity) in customary units (i.e., c., pt., qt., gal.) and metric units (mL, L) to the nearest whole unit.	Module 7: Lesson 7: 392-395
3.MDA.3 Collect, organize, classify, and interpret data with multiple categories and draw a scaled picture graph and a	Module 7: Lesson 2: 372-375 Module 7: Lesson 3: 376-379

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Grade 3	
scaled bar graph to represent the data.	
3.MDA.4 Generate data by measuring length to the nearest inch, half-inch and quarter-inch and organize the data in a line plot using a horizontal scale marked off in appropriate units.	Module 7: Lesson PL2: 364-367
3.MDA.5 Understand the concept of area measurement.	
a. Recognize area as an attribute of plane figures;	Module 7: Lesson 15: 422-425
b. Measure area by building arrays and counting standard unit squares;	supports: standard: Module 7: Lesson 15: 422-425
c. Determine the area of a rectilinear polygon and relate to multiplication and addition.	supports: standard: Module 7: Lesson 15: 422-425
3.MDA.6 Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	provides opportunities: Module 7: Lesson 14: 418-421 Module 7: Lesson 15: 422-425

South Carolina College- and Career-Ready Standards for Mathematics	*VMath, Level E*
Grade 4	
Mathematical Process Standards	
1. Make sense of problems and persevere in solving them.	Module 3: Lesson 15: 178-181 Module 7: Lesson 15: 402-405
2. Reason both contextually and abstractly.	Module 1: Lesson 6: 56-57 Module 2: Lesson LP2: 78-81
3. Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.	Module 3: Lesson PL1: 120-123 Module 4: Lesson PL2: 190-193
4. Connect mathematical ideas and real-world situations through modeling.	Module 1: Lesson 6: 56-57 Module 1: Lesson 9: 66-67 Module 2: Lesson 1: 82-83 Module 2: Lesson 8: 104-107
5. Use a variety of mathematical tools effectively and strategically.	Module 1: Lesson 6: 56-57 Module 2: Lesson 8: 104-107 Module 5: Lesson PL1: 230 Module 5: Lesson PL2: 231
6. Communicate mathematically and approach mathematical situations with precision.	Module 6: Lesson PL1: 292-295 Module 6: Lesson PL2: 296-300 Module 7: Lesson PL1: 342-345 Module 7: Lesson PL2: 346-349
7. Identify and utilize structure and patterns.	Module 4: Lesson 5: 210-211 Module 3: Lesson 3: 136-139
Number Sense and Base Ten	
4.NSBT.1 Understand that, in a multi-digit whole number, a digit represents ten times what the same digit represents in the place to its right.	Module 1: Lesson 2: 42-45
4.NSBT.2 Recognize math periods and number patterns within each period to read and write in standard form large numbers through 999,999,999.	Module 1: Lesson 2: 42-45
4.NSBT.3 Use rounding as one form of estimation and round whole numbers to any given place value.	Module 1: Lesson 9: 66-67 Module 1: Lesson 10: 68-71
4.NSBT.4 Fluently add and subtract multi-digit whole numbers using strategies to include a standard algorithm.	Module 2: Lesson 2: 84-87 Module 2: Lesson 3: 88-91 Module 2: Lesson 6: 96-99 Module 2: Lesson 7: 100-103
4.NSBT.5 Multiply up to a four-digit number by a one-digit number and multiply a two-digit number by a two-digit number using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using rectangular arrays, area models and/or equations.	Module 3: Lesson 1: 128-131 Module 3: Lesson 2: 132-135 Module 3: Lesson 3: 136-139 Module 3: Lesson 4: 140-143 Module 3: Lesson 5: 144-147 Module 3: Lesson 6: 148-151 Module 3: Lesson 14: 174-177 Module 3: Lesson 15: 178-181
4.NSBT.6 Divide up to a four-digit dividend by a one-digit divisor using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.	Module 3: Lesson 10: 164-165 Module 3: Lesson 11: 166-167 Module 3: Lesson 13: 170-173
Number Sense and Operations—Fractions	

South Carolina College- and Career-Ready Standards for Mathematics	*VMath, Level E*
Grade 4	
4.NSF.1 Explain why a fraction (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100), □□□□ , is equivalent to a fraction, □□×□□□□×□□ , by using visual fraction 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.	Module 4: Lesson 6: 214-215 Module 4: Lesson 7: 216-219
4.NSF.2 Compare two given fractions (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100) by creating common denominators or numerators, or by comparing to a benchmark fraction such as 12 and represent the comparison using the symbols >, =, or <.	Module 4: Lesson 9: 222-223 Module 4: Lesson 10: 224-227
4.NSF.3 Develop an understanding of addition and subtraction of fractions (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100) based on unit fractions.	Module 5: Lesson 9: 264-265 Module 5: Lesson 10: 266-269 Module 5: Lesson 11: 270-271
a. Compose and decompose a fraction in more than one way, recording each composition and decomposition as an addition or subtraction equation;	Module 4: Lesson 5: 210-213
b. Add and subtract mixed numbers with like denominators;	Module 5: Lesson 12: 272-275
c. Solve real-world problems involving addition and subtraction of fractions referring to the same whole and having like denominators.	Module 5: Lesson 9: 264-265 Module 5: Lesson 10: 266-269 Module 5: Lesson 11: 270-271 Module 5: Lesson 12: 272-275
4.NSF.4 Apply and extend an understanding of multiplication by multiplying a whole number and a fraction (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100).	
a. Understand a fraction □□□□ as a multiple of 1□□;	
b. Understand a multiple of □□□□ as a multiple of 1□□, and use this understanding to multiply a fraction by a whole number;	provides opportunities: Module 5: Lesson 15: 284-287
c. Solve real-world problems involving multiplication of a fraction by a whole number (i.e., use visual fraction models and equations to represent the problem).	Module 5: Lesson 15: 284-287
4.NSF.5 Express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100 and use this technique to add two fractions with respective denominators of 10 and 100.	supports standard: Module 4: Lesson 7: 216-219
4.NSF.6 Write a fraction with a denominator of 10 or 100 using decimal notation, and read and write a decimal number as a fraction.	Module 5: Lesson 13: 276-279
4.NSF.7 Compare and order decimal numbers to hundredths, and justify using concrete and visual models.	Module 5: Lesson 3: 240-243
Algebraic Thinking and Operations	
4.ATO.1 Interpret a multiplication equation as a comparison (e.g. interpret 35 = 5x7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.) Represent verbal statements of multiplicative comparisons as multiplication equations.	provides opportunities: Module 3: Lesson PL1: 120-123

South Carolina College- and Career-Ready Standards for Mathematics	*VMath, Level E*
Grade 4	
4.ATO.2 Solve real-world problems using multiplication (product unknown) and division (group size unknown, number of groups unknown).	provides opportunities: Module 7: Lesson 10: 384-387
4.ATO.3 Solve multi-step, real-world problems using the four operations. Represent the problem using an equation with a variable as the unknown quantity.	provides opportunities: Module 2: Lesson 10: 112-115 Module 7: Lesson 10: 384-387
4.ATO.4 Recognize that a whole number is a multiple of each of its factors. Find all factors for a whole number in the range 1 – 100 and determine whether the whole number is prime or composite.	Module 4: Lesson PL1: 186-189 Module 4: Lesson 2: 198-201
4.ATO.5 Generate a number or shape pattern that follows a given rule and determine a term that appears later in the sequence.	supports standard: Module 7: Lesson 11: 388-391
Geometry	
4.G.1 Draw points, lines, line segments, rays, angles (i.e., right, acute, obtuse), and parallel and perpendicular lines. Identify these in two-dimensional figures.	provides opportunities: Module 6: Lesson PL1: 292-295 Module 6: Lesson PL2: 296-300 Module 6: Lesson 1: 301 Module 6: Lesson 7: 322-325
4.G.2 Classify quadrilaterals based on the presence or absence of parallel or perpendicular lines.	Module 6: Lesson 6: 318-321
4.G.3 Recognize right triangles as a category, and identify right triangles.	supports standard: Module 6: Lesson PL2: 296-300 Module 6: Lesson 1: 301 Module 6: Lesson 4: 310-313 Module 6: Lesson 7: 322-325
4.G.4 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	Module 6: Lesson 9: 330-331 Module 6: Lesson 10: 332-335
Measurement and Data Analysis	
4.MDA.1 Convert measurements within a single system of measurement, customary (i.e., in., ft., yd., oz., lb., sec., min., hr.) or metric (i.e., cm, m, km, g, kg, mL, L) from a larger to a smaller unit.	Module 7: Lesson 6: 370-373
4.MDA.2 Solve real-world problems involving distance/length, intervals of time within 12 hours, liquid volume, mass, and money using the four operations.	provides opportunities: Module 5: Lesson 8: 260-263 Module 7: Lesson 2: 354-357 Module 7: Lesson 3: 358-361 Module 7: Lesson 7: 374-377
4.MDA.3 Apply the area and perimeter formulas for rectangles.	supports standard: Module 7: Lesson PL1: 342-345
4.MDA.4 Create a line plot to display a data set (i.e., generated by measuring length to the nearest quarter-inch and eighth-inch) and interpret the line plot.	Module 7: Lesson 14: 401
4.MDA.5 Understand the relationship of an angle measurement to a circle.	provides opportunities: Module 6: Lesson 7: 322-325

South Carolina College- and Career-Ready Standards for Mathematics	*VMath, Level E*
Grade 4	
4.MDA.6 Measure and draw angles in whole number degrees using a protractor.	Module 6: Lesson 1: 301
4.MDA.7 Solve addition and subtraction problems to find unknown angles in real-world and mathematical problems.	provides opportunities: Module 6: Lesson 1: 301
4.MDA.8 Determine the value of a collection of coins and bills greater than $1.00.	Module 5: Lesson 8: 260-263

South Carolina College- and Career-Ready Standards for Mathematics	*VMath, Level F*
Grade 5	
Mathematical Process Standards	
1. Make sense of problems and persevere in solving them.	Module 5: Lesson PL2: 257 Module 6: Lesson 3: 308-311
2. Reason both contextually and abstractly.	Module 1: Lesson 10: 75-78 Module 4: Lesson PL1: 186-189 Module 4: Lesson PL2: 190-193 Module 3: Lesson 15: 176-179
3. Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.	Module 5: Lesson 9: 284-287
4. Connect mathematical ideas and real-world situations through modeling.	Module 1: Lesson 1: 38-41 Module 6: Lesson PL2: 297-299 Module 7: Lesson PL1: 342-343 Module 4: Lesson 12: 235
5. Use a variety of mathematical tools effectively and strategically.	Module 1: Lesson 1: 38-41 Module 2: Lesson PL1: 80-81 Module 7: Lesson 10: 380-383
6. Communicate mathematically and approach mathematical situations with precision.	Module 3: Lesson PL2: 126-127 Module 7: Lesson PL2: 344-347 Module 6: Lesson 10: 334-337
7. Identify and utilize structure and patterns.	Module 3: Lesson PL1: 122-125
Number Sense and Base Ten	
5.NSBT.1 Understand that, in a multi-digit whole number, a digit in one place represents 10 times what the same digit represents in the place to its right, and represents 110 times what the same digit represents in the place to its left.	Module 2: Lesson 3: 92-95 Module 2: Lesson 4: 96-99 Module 2: Lesson 5: 100-103
5.NSBT.2 Use whole number exponents to explain:	
a. patterns in the number of zeroes of the product when multiplying a number by powers of 10;	Module 2: Lesson 3: 92-95 Module 2: Lesson 4: 96-99 Module 2: Lesson 5: 100-103 Module 3: Lesson 6: 146-149
b. patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.	Module 2: Lesson 3: 92-95 Module 2: Lesson 4: 96-99 Module 2: Lesson 5: 100-103 Module 3: Lesson 6: 146-149
5.NSBT.3 Read and write decimals in standard and expanded form. Compare two decimal numbers to the thousandths using the symbols >, =, or <.	Module 1: Lesson 8: 66-69 Module 2: Lesson 3: 92-95 Module 2: Lesson 4: 96-99
5.NSBT.4 Round decimals to any given place value within thousandths.	Module 2: Lesson 9: 112-116 Module 2: Lesson 10: 117-120
5.NSBT.5 Fluently multiply multi-digit whole numbers using strategies to include a standard algorithm.	Module 3: Lesson 7: 150-153
5.NSBT.6 Divide up to a four-digit dividend by a two-digit divisor, using strategies based on place value, the properties of operations, and the relationship between multiplication and division.	Module 3: Lesson 10: 160-163
5.NSBT.7 Add, subtract, multiply, and divide decimal numbers to hundredths using concrete area models and drawings.	Module 3: Lesson 1: 128-131 Module 3: Lesson 2: 132-135

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	Module 3: Lesson 3: 136-137 Module 3: Lesson 4: 138-141 Module 3: Lesson 5: 142-145 Module 3: Lesson 8: 154-155 Module 3: Lesson 9: 156-159 Module 3: Lesson 11: 164-165 Module 3: Lesson 12: 166-169
Number Sense and Operations—Fractions	
5.NSF.1 Add and subtract fractions with unlike denominators (including mixed numbers) using a variety of models, including an area model and number line.	Module 4: Lesson 3: 202-205 Module 4: Lesson 4: 206-209 Module 4: Lesson 5: 210-211 Module 4: Lesson 6: 212-215
5.NSF.2 Solve real-world problems involving addition and subtraction of fractions with unlike denominators.	Module 4: Lesson 3: 202-205 Module 4: Lesson 4: 206-209 Module 4: Lesson 5: 210-211 Module 4: Lesson 6: 212-215
5.NSF.3 Understand the relationship between fractions and division of whole numbers by interpreting a fraction as the numerator divided by the denominator (i.e., □□□□=□□÷□□).	Module 4: Lesson 12: 235
5.NSF.4 Extend the concept of multiplication to multiply a fraction or whole number by a fraction.	Module 4: Lesson 11: 230-234
a. Recognize the relationship between multiplying fractions and finding the areas of rectangles with fractional side lengths;	provides opportunities: Module 7: Lesson 8: 372-375
b. Interpret multiplication of a fraction by a whole number and a whole number by a fraction and compute the product;	Module 4: Lesson 10: 229 Module 4: Lesson 11: 230-234
c. Interpret multiplication in which both factors are fractions less than one and compute the product.	
5.NSF.5 Justify the reasonableness of a product when multiplying with fractions.	
a. Estimate the size of the product based on the size of the two factors;	supports standard: Module 3: Lesson 15: 176-179
b. Explain why multiplying a given number by a number greater than 1 (e.g., improper fractions, mixed numbers, whole numbers) results in a product larger than the given number;	Module 4: Lesson 10: 229 Module 4: Lesson 11: 230-234
c. Explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number;	Module 4: Lesson 10: 229 Module 4: Lesson 11: 230-234
d. Explain why multiplying the numerator and denominator by the same number has the same effect as multiplying the fraction by 1.	Module 5: Lesson PL2: 257
5.NSF.6 Solve real-world problems involving multiplication of a fraction by a fraction, improper fraction and a mixed number.	Module 4: Lesson 15: 245-248
5.NSF.7 Extend the concept of division to divide unit fractions and whole numbers by using visual fraction models and	Module 4: Lesson 13: 236-239

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equations.	
a. Interpret division of a unit fraction by a non-zero whole number and compute the quotient;	Module 4: Lesson 13: 236-239
b. Interpret division of a whole number by a unit fraction and compute the quotient.	Module 4: Lesson 14: 240-244
5.NSF.8 Solve real-world problems involving division of unit fractions and whole numbers, using visual fraction models and equations.	Module 4: Lesson 15: 245-248
Algebraic Thinking and Operations	
5.ATO.1 Evaluate numerical expressions involving grouping symbols (i.e., parentheses, brackets, braces).	Module 5: Lesson 2: 262-265 Module 5: Lesson 3: 266-268 Module 5: Lesson 6: 274-275
5.ATO.2 Translate verbal phrases into numerical expressions and interpret numerical expressions as verbal phrases.	
5.ATO.3 Investigate the relationship between two numerical patterns.	
a. Generate two numerical patterns given two rules and organize in tables;	Module 5: Lesson 5: 270-273 Module 5: Lesson 10: 288-291
b. Translate the two numerical patterns into two sets of ordered pairs;	
c. Graph the two sets of ordered pairs on the same coordinate plane;	Module 6: Lesson 6: 320-323 Module 6: Lesson 8: 328-332
d. Identify the relationship between the two numerical patterns.	supports standard: Module 5: Lesson 5: 270-273 Module 5: Lesson 10: 288-291
Geometry	
5.G.1 Define a coordinate system.	supports standard: Module 7: Lesson 9: 376-379
a. The *x*- and *y*- axes are perpendicular number lines that intersect at 0 (the origin);	supports standard: Module 7: Lesson 9: 376-379
b. Any point on the coordinate plane can be represented by its coordinates;	supports standard: Module 7: Lesson 9: 376-379
c. The first number in an ordered pair is the *x*-coordinate and represents the horizontal distance from the origin;	supports standard: Module 7: Lesson 9: 376-379
d. The second number in an ordered pair is the *y*-coordinate and represents the vertical distance from the origin.	supports standard: Module 7: Lesson 9: 376-379
5.G.2 Plot and interpret points in the first quadrant of the coordinate plane to represent real-world and mathematical situations.	Module 7: Lesson 10: 380-383
5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	supports standard: Module 7: Lesson 1: 348-351 Module 7: Lesson 2: 352-355
5.G.4 Classify two-dimensional figures in a hierarchy based on their attributes.	Module 7: Lesson 1: 348-351
Measurement and Data Analysis	
5.MDA.1 Convert measurements within a single system of	Module 7: Lesson 3: 356-359

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measurement: customary (i.e., in., ft., yd., oz., lb., sec., min., hr.) or metric (i.e., mm, cm, m, km, g, kg, mL, L) from a larger to a smaller unit and a smaller to a larger unit.	Module 7: Lesson 4: 360-363
5.MDA.2 Create a line plot consisting of unit fractions and use operations on fractions to solve problems related to the line plot.	Module 6: Lesson 9: 333
5.MDA.3 Understand the concept of volume measurement.	
a. Recognize volume as an attribute of right rectangular prisms;	Module 7: Lesson 6: 366-370 Module 7: Lesson 7: 371
b. Relate volume measurement to the operations of multiplication and addition by packing right rectangular prisms and then counting the layers of standard unit cubes;	supports standard: Module 7: Lesson 6: 366-370 Module 7: Lesson 7: 371
c. Determine the volume of right rectangular prisms using the formula derived from packing right rectangular prisms and counting the layers of standard unit cubes.	supports standard: Module 7: Lesson 6: 366-370 Module 7: Lesson 7: 371
5.MDA.4 Differentiate among perimeter, area and volume and identify which application is appropriate for a given situation.	provides opportunities: Module 7: Lesson 6: 366-370 Module 7: Lesson 8: 372-375

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Grade 6	
Mathematical Process Standards	
1. Make sense of problems and persevere in solving them.	Module 2: Lesson PL1: 80-83 Module 5: Lesson 5: 264-267
2. Reason both contextually and abstractly.	Module 1: Lesson 4: 50-53 Module 3: Lesson PL1: 134-137
3. Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.	Module 1: Lesson 6: 58-61
4. Connect mathematical ideas and real-world situations through modeling.	Module 1: Lesson 8: 66-67 Module 2: Lesson PL2: 84-87 Module 3: Lesson PL2: 138-139 Module 5: Lesson PL1: 245
5. Use a variety of mathematical tools effectively and strategically.	Module 6: Lesson PL1: 290-291 Module 6: Lesson PL2: 292-295 Module 7: Lesson PL2: 292-295
6. Communicate mathematically and approach mathematical situations with precision.	Module 4: Lesson PL1: 182-186
7. Identify and utilize structure and patterns.	Module 1: Lesson 10: 72-75 Module 4: Lesson PL1: 182-186 Module 4: Lesson PL2: 187 Module 7: Lesson PL1: 290-291
The Number System	
6.NS.1 Compute and represent quotients of positive fractions using a variety of procedures (e.g., visual models, equations, and real-world situations).	Module 3: Lesson 9: 172-175 Module 3: Lesson 10: 176-179
6.NS.2 Fluently divide multi-digit whole numbers using a standard algorithmic approach.	Module 1: Lesson 3: 56-49 Module 1: Lesson 7: 62-65
6.NS.3 Fluently add, subtract, multiply and divide multi-digit decimal numbers using a standard algorithmic approach.	Module 1: Lesson 8: 66-67 Module 1: Lesson 9: 68-71 Module 2: Lesson 1: 88-91 Module 2: Lesson 2: 92-95 Module 2: Lesson 3: 96-99
6.NS.4 Find common factors and multiples using two whole numbers.	Module 2: Lesson 5: 105-107 Module 2: Lesson 6: 108-111
a. Compute the greatest common factor (GCF) of two numbers both less than or equal to 100.	Module 2: Lesson 4: 100-104
b. Compute the least common multiple (LCM) of two numbers both less than or equal to 12.	Module 2: Lesson 5: 105-107 Module 2: Lesson 6: 108-111
c. Express sums of two whole numbers, each less than or equal to 100, using the distributive property to factor out a common factor of the original addends.	Module 4: Lesson 5: 199
6.NS.5 Understand that the positive and negative representations of a number are opposites in direction and value. Use integers to represent quantities in real-world situations and explain the meaning of zero in each situation.	Module 2: Lesson 7: 112-115 Module 3: Lesson 2: 144-147 Module 3: Lesson 3: 148-151 Module 3: Lesson 4: 152-155 Module 3: Lesson 5: 156-159
6.NS.6 Extend the understanding of the number line to include all rational numbers and apply this concept to the	

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coordinate plane.	
a. Understand the concept of opposite numbers, including zero, and their relative locations on the number line.	provides opportunities: Module 7: Lesson 10: 328-331
b. Understand that the signs of the coordinates in ordered pairs indicate their location on an axis or in a quadrant on the coordinate plane.	provides opportunities: Module 7: Lesson 10: 328-331
c. Recognize when ordered pairs are reflections of each other on the coordinate plane across one axis, both axes, or the origin.	provides opportunities: Module 7: Lesson 10: 328-331
d. Plot rational numbers on number lines and ordered pairs on coordinate planes.	provides opportunities: Module 7: Lesson 10: 328-331
6.NS.7 Understand and apply the concepts of comparing, ordering, and finding absolute value to rational numbers.	
a. Interpret statements using equal to (=) and not equal to (≠).	
b. Interpret statements using less than (<), greater than (>), and equal to (=) as relative locations on the number line.	
c. Use concepts of equality and inequality to write and to explain real-world and mathematical situations.	Module 4: Lesson 11: 218-221
d. Understand that absolute value represents a number's distance from zero on the number line and use the absolute value of a rational number to represent real-world situations.	Module 2: Lesson 8: 116-119 Module 2: Lesson 9: 120-123
e. Recognize the difference between comparing absolute values and ordering rational numbers. For negative rational numbers, understand that as the absolute value increases, the value of the negative number decreases.	provides opportunities: Module 2: Lesson 8: 116-119 Module 2: Lesson 9: 120-123
6.NS.8 Extend knowledge of the coordinate plane to solve real-world and mathematical problems involving rational numbers.	
a. Plot points in all four quadrants to represent the problem.	provides opportunities: Module 7: Lesson 10: 328-331
b. Find the distance between two points when ordered pairs have the same *x*-coordinates or same *y*-coordinates.	provides opportunities: Module 7: Lesson 10: 328-331
c. Relate finding the distance between two points in a coordinate plane to absolute value using a number line.	provides opportunities: Module 7: Lesson 10: 328-331
6.NS.9 Investigate and translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Fractions should be limited to those with denominators of 2, 3, 4, 5, 8, 10, and 100.	Module 5: Lesson 7: 272-275 Module 5: Lesson 8: 276-279 Module 5: Lesson 9: 280-284
Ratios and Proportional Relationships	
6.RP.1 Interpret the concept of a ratio as the relationship between two quantities, including part to part and part to whole.	
6.RP.2 Investigate relationships between ratios and rates.	Module 5: Lesson 2: 252-255 Module 5: Lesson 3: 256-259
a. Translate between multiple representations of ratios (i.e., □□□□□,□□:□□,□□ to □□, visual models).	Module 5: Lesson 2: 252-255

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b. Recognize that a rate is a type of ratio involving two different units.	provides opportunities: Module 5: Lesson 3: 256-259
c. Convert from rates to unit rates.	provides opportunities: Module 5: Lesson 3: 256-259
6.RP.3 Apply the concepts of ratios and rates to solve real-world and mathematical problems.	
a. Create a table consisting of equivalent ratios and plot the results on the coordinate plane.	Module 5: Lesson 4: 260-263 Module 7: Lesson 10: 328-331
b. Use multiple representations, including tape diagrams, tables, double number lines, and equations, to find missing values of equivalent ratios.	Module 5: Lesson 4: 260-263 Module 7: Lesson 10: 328-331
c. Use two tables to compare related ratios.	provides opportunities: Module 5: Lesson 2: 252-255
d. Apply concepts of unit rate to solve problems, including unit pricing and constant speed.	Module 5: Lesson 5: 264-267
e. Understand that a percentage is a rate per 100 and use this to solve problems involving wholes, parts, and percentages.	Module 5: Lesson 3: 256-259
f. Solve one-step problems involving ratios and unit rates (e.g., dimensional analysis).	Module 5: Lesson 2: 252-255 Module 5: Lesson 3: 256-259
Expressions, Equations, and Inequalities	
6.EEI.1 Write and evaluate numerical expressions involving whole-number exponents and positive rational number bases using the Order of Operations.	Module 4: Lesson PL2: 187 Module 4: Lesson 3: 194-197
6.EEI.2 Extend the concepts of numerical expressions to algebraic expressions involving positive rational numbers.	
a. Translate between algebraic expressions and verbal phrases that include variables.	Module 4: Lesson 1: 188-189
b. Investigate and identify parts of algebraic expressions using mathematical terminology, including term, coefficient, constant, and factor.	Module 4: Lesson 1: 188-189
c. Evaluate real-world and algebraic expressions for specific values using the Order of Operations. Grouping symbols should be limited to parentheses, braces, and brackets. Exponents should be limited to whole-numbers.	Module 4: Lesson 3: 194-197 Module 4: Lesson 4: 198 Module 4: Lesson 5: 199
6.EEI.3 Apply mathematical properties (e.g., commutative, associative, distributive) to generate equivalent expressions.	Module 4: Lesson 5: 199
6.EEI.4 Apply mathematical properties (e.g., commutative, associative, distributive) to justify that two expressions are equivalent.	Module 4: Lesson 5: 199
6.EEI.5 Understand that if any solutions exist, the solution set for an equation or inequality consists of values that make the equation or inequality true.	Module 4: Lesson 5: 199 Module 4: Lesson 11: 218-221
6.EEI.6 Write expressions using variables to represent quantities in real-world and mathematical situations.	Module 4: Lesson 2: 190-193 Module 4: Lesson 3: 194-197

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Understand the meaning of the variable in the context of the situation.	Module 4: Lesson 6: 200-201 Module 4: Lesson 10: 214-217
6.EEI.7 Write and solve one-step linear equations in one variable involving nonnegative rational numbers for real-world and mathematical situations.	Module 4: Lesson 7: 202-205 Module 4: Lesson 8: 206-209 Module 4: Lesson 10: 214-217 Module 4: Lesson 13: 226-229 Module 4: Lesson 14: 230-233 Module 4: Lesson 15: 234-237
6.EEI.8 Extend knowledge of inequalities used to compare numerical expressions to include algebraic expressions in real-world and mathematical situations.	
a. Write an inequality of the form □□>□□ or □□<□□ and graph the solution set on a number line.	Module 4: Lesson 11: 218-221 Module 4: Lesson 12: 222-225
b. Recognize that inequalities have infinitely many solutions.	Module 4: Lesson 11: 218-221
6.EEI.9 Investigate multiple representations of relationships in real-world and mathematical situations.	
a. Write an equation that models a relationship between independent and dependent variables.	Module 4: Lesson 9: 210-213
b. Analyze the relationship between independent and dependent variables using graphs and tables.	Module 4: Lesson 10: 214-217
c. Translate among graphs, tables, and equations.	Module 4: Lesson 10: 214-217
Geometry	
6.GM.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	Module 6: Lesson 1: 296-299 Module 6: Lesson 2: 300-303 Module 6: Lesson 3: 304-307 Module 6: Lesson 5: 312-315 Module 6: Lesson 6: 316-317 Module 6: Lesson 7: 318-321
6.GM.2 Use visual models (e.g., model by packing) to discover that the formulas for the volume of a right rectangular prism (□□=□□□□h,▪ ▪ =▪ ▪ h) are the same for whole or fractional edge lengths. Apply these formulas to solve real-world and mathematical problems.	Module 6: Lesson 8: 322-323
6.GM.3 Apply the concepts of polygons and the coordinate plane to real-world and mathematical situations.	
a. Given coordinates of the vertices, draw a polygon in the coordinate plane.	supports standard: Module 7: Lesson 10: 328-331
b. Find the length of an edge if the vertices have the same *x*-coordinates or same *y*-coordinates.	supports standard: Module 7: Lesson 10: 328-331
6.GM.4 Unfold three-dimensional figures into two-dimensional rectangles and triangles (nets) to find the surface area and to solve real-world and mathematical problems.	supports standard: Module 7: Lesson 10: 328-331
Data Analysis and Statistics	
6.DS.1 Differentiate between statistical and non-statistical questions.	
6.DS.2 Use center (mean, median, mode), spread (range,	Module 7: Lesson 1: 296-299

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interquartile range, mean absolute value), and shape (symmetrical, skewed left, skewed right) to describe the distribution of a set of data collected to answer a statistical question.	
6.DS.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	Module 7: Lesson 1: 296-299 Module 7: Lesson 1: 296-299 Module 7: Lesson 3: 3-4-307 Module 7: Lesson 6: 316-317 Module 7: Lesson 7: 318-321
6.DS.4 Select and create an appropriate display for numerical data, including dot plots, histograms, and box plots.	Module 7: Lesson 8: 322-323 Module 7: Lesson 9: 324-327
6.DS.5 Describe numerical data sets in relation to their real-world context.	
a. State the sample size.	
b. Describe the qualitative aspects of the data (e.g., how it was measured, units of measurement).	Module 7: Lesson 1: 296-299 Module 7: Lesson 2: 300-303 Module 7: Lesson 3: 3-4-307
c. Give measures of center (median, mean).	Module 7: Lesson 6: 316-317 Module 7: Lesson 7: 318-321 Module 7: Lesson 8: 322-323
d. Find measures of variability (interquartile range, mean absolute deviation) using a number line.	
e. Describe the overall pattern (shape) of the distribution.	
f. Justify the choices for measure of center and measure of variability based on the shape of the distribution.	
g. Describe the impact that inserting or deleting a data point has on the measures of center (median, mean) for a data set.	provides opportunities: Gizmos: Mean, Median, and Mode

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Mathematical Process Standards	
1. Make sense of problems and persevere in solving them.	Module 4: Lesson PL1: 166-169 Module 4: Lesson PL2: 170-173 Module 6: Lesson 15: 309
2. Reason both contextually and abstractly.	Module 1: Lesson 8: 62-65 Module 3: Lesson PL1: 122-126 Module 3: Lesson PL2: 127 Module 7: Lesson PL1: 316-320
3. Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.	Module 7: Lesson 9: 352-355 Module 7: Lesson 10: 356-359
4. Connect mathematical ideas and real-world situations through modeling.	Module 1: Lesson 1: 38-39 Module 1: Lesson 4: 48-49
5. Use a variety of mathematical tools effectively and strategically.	Module 6: Lesson PL1: 252-255 Module 6: Lesson PL2: 256-259
6. Communicate mathematically and approach mathematical situations with precision.	Module 5: Lesson PL1: 212-215 Module 5: Lesson PL2: 216-219
7. Identify and utilize structure and patterns.	Module 2: Lesson PL2: 80-83
The Number System	
7.NS.1 Extend prior knowledge of operations with positive rational numbers to add and to subtract all rational numbers and represent the sum or difference on a number line.	Module 2: Lesson PL2: 80-83 Module 2: Lesson 4: 96-99 Module 2: Lesson 8: 106-109 Module 2: Lesson 9: 110-113 Module 2: Lesson 10: 114-117
a. Understand that the additive inverse of a number is its opposite and their sum is equal to zero.	Module 2: Lesson 2: 88-91
b. Understand that the sum of two rational numbers (□□+□□) represents a distance from *p* on the number line equal to |*q*| where the direction is indicated by the sign of *q*.	Module 2: Lesson 4: 96-99 Module 2: Lesson 7: 105
c. Translate between the subtraction of rational numbers and addition using the additive inverse, □□−□□=□□+(−□□).	Module 2: Lesson 9: 110-113 Module 2: Lesson 10: 114-117
d. Demonstrate that the distance between two rational numbers on the number line is the absolute value of their difference.	provides opportunities: Module 2: Lesson PL2: 80-83
e. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to add and subtract rational numbers.	Module 2: Lesson 3: 92-95 Module 2: Lesson 4: 96-99 Module 2: Lesson 5: 100 Module 2: Lesson 6: 101-104 Module 2: Lesson 7: 105 Module 2: Lesson 8: 106-109 Module 2: Lesson 9: 110-113 Module 2: Lesson 10: 114-117
7.NS.2 Extend prior knowledge of operations with positive rational numbers to multiply and to divide all rational numbers.	
a. Understand that the multiplicative inverse of a number is its reciprocal and their product is equal to one.	Module 3: Lesson 1: 128-131

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b. Understand sign rules for multiplying rational numbers.	Module 3: Lesson 1: 128-131 Module 3: Lesson 2: 132-135 Module 3: Lesson 3: 136-139 Module 3: Lesson 9: 154-157 Module 3: Lesson 10: 158-161
c. Understand sign rules for dividing rational numbers and that a quotient of integers (with a non-zero divisor) is a rational number.	Module 3: Lesson 4: 140-143 Module 3: Lesson 5: 144-147 Module 3: Lesson 6: 148 Module 3: Lesson 7: 149 Module 3: Lesson 8: 150-153
d. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to multiply and divide rational numbers.	Module 3: Lesson 1: 128-131 Module 3: Lesson 2: 132-135 Module 3: Lesson 3: 136-139 Module 3: Lesson 4: 140-143 Module 3: Lesson 5: 144-147 Module 3: Lesson 6: 148 Module 3: Lesson 7: 149 Module 3: Lesson 8: 150-153 Module 3: Lesson 9: 154-157 Module 3: Lesson 10: 158-161
e. Understand that some rational numbers can be written as integers and all rational numbers can be written as fractions or decimal numbers that terminate or repeat.	Module 2: Lesson PL1: 76-79
7.NS.3 Apply the concepts of all four operations with rational numbers to solve real-world and mathematical problems.	supports standard: Module 2: Lesson 3: 92-95 Module 2: Lesson 4: 96-99 Module 2: Lesson 5: 100 Module 2: Lesson 6: 101-104 Module 2: Lesson 7: 105 Module 2: Lesson 8: 106-109 Module 2: Lesson 9: 110-113 Module 2: Lesson 10: 114-117
7.NS.4 Understand and apply the concepts of comparing and ordering to rational numbers.	Module 3: Lesson PL1: 122-126
a. Interpret statements using less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥), and equal to (=) as relative locations on the number line.	Module 3: Lesson PL1: 122-126
b. Use concepts of equality and inequality to write and explain real-world and mathematical situations.	Module 4: Lesson 9: 202-206 Module 4: Lesson 10: 207-210
7.NS.5 Extend prior knowledge to translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Exclude the conversion of repeating decimal numbers to fractions.	Module 3: Lesson 1: 128-131 Module 3: Lesson 2: 132-135 Module 3: Lesson 10: 158-161
Ratios and Proportional Relationships	
7.RP.1 Compute unit rates, including those involving complex fractions, with like or different units.	Module 5: Lesson PL2: 216-219
7.RP.2 Identify and model proportional relationships given	

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multiple representations, including tables, graphs, equations, diagrams, verbal descriptions, and real-world situations.	
a. Determine when two quantities are in a proportional relationship.	Module 5: Lesson3: 228
b. Recognize or compute the constant of proportionality.	Module 5: Lesson3: 228
c. Understand that the constant of proportionality is the unit rate.	Module 5: Lesson3: 228
d. Use equations to model proportional relationships.	Module 5: Lesson3: 228
e. Investigate the graph of a proportional relationship and explain the meaning of specific points (e.g., origin, unit rate) in the context of the situation.	provides opportunities: Module 5: Lesson 9: 240-243 Module 5: Lesson 10: 244-247
7.RP.3 Solve real-world and mathematical problems involving ratios and percentages using proportional reasoning (e.g., multi-step dimensional analysis, percent increase/decrease, tax).	Module 5: Lesson 6: 231
Expressions, Equations, and Inequalities	
7.EEI.1 Apply mathematical properties (e.g., commutative, associative, distributive) to simplify and to factor linear algebraic expressions with rational coefficients.	Module 4: Lesson PL2: 170-173 Module 4: Lesson 1: 174-177 Module 4: Lesson 2: 178-181
7.EEI.2 Recognize that algebraic expressions may have a variety of equivalent forms and determine an appropriate form for a given real-world situation.	Module 4: Lesson 2: 178-181
7.EEI.3 Extend previous understanding of Order of Operations to solve multi-step real-world and mathematical problems involving rational numbers. Include fraction bars as a grouping symbol.	Module 4: Lesson 3: 182-183 Module 4: Lesson 4: 184-187 Module 4: Lesson 5: 188-191 Module 4: Lesson 6: 192-193 Module 4: Lesson 7: 194-197
7.EEI.4 Apply the concepts of linear equations and inequalities in one variable to real-world and mathematical situations.	
a. Write and fluently solve linear equations of the form □□□□+□□=□□ and □□(□□+□□)=□□ where □□, □□, and □□ are rational numbers.	Module 4: Lesson 8: 198-201
b. Write and solve multi-step linear equations that include the use of the distributive property and combining like terms. Exclude equations that contain variables on both sides.	Module 4: Lesson 8: 198-201
c. Write and solve two-step linear inequalities. Graph the solution set on a number line and interpret its meaning.	Module 4: Lesson 9: 202-206 Module 4: Lesson 10: 207-210
d. Identify and justify the steps for solving multi-step linear equations and two-step linear inequalities.	Module 4: Lesson 9: 202-206 Module 4: Lesson 10: 207-210
7.EEI.5 Understand and apply the laws of exponents (i.e., product rule, quotient rule, power to a power, product to a power, quotient to a power, zero power property) to simplify numerical expressions that include whole-number exponents.	
Geometry and Measurement	
7.GM.1 Determine the scale factor and translate between	Module 5: Lesson 1: 220-223

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scale models and actual measurements (e.g., lengths, area) of real-world objects and geometric figures using proportional reasoning.	Module 5: Lesson 2: 224-227
7.GM.2 Construct triangles and special quadrilaterals using a variety of tools (e.g., freehand, ruler and protractor, technology).	
a. Construct triangles given all measurements of either angles or sides.	Module 5: Lesson 1: 220-223 Module 5: Lesson 2: 224-227
b. Decide if the measurements determine a unique triangle, more than one triangle, or no triangle.	provides opportunities: Module 5: Lesson 1: 220-223 Module 5: Lesson 2: 224-227
c. Construct special quadrilaterals (i.e., kite, trapezoid, isosceles trapezoid, rhombus, parallelogram, rectangle) given specific parameters about angles or sides.	
7.GM.3 Describe two-dimensional cross-sections of three-dimensional figures, specifically right rectangular prisms and right rectangular pyramids.	
7.GM.4 Investigate the concept of circles.	
a. Demonstrate an understanding of the proportional relationships between diameter, radius, and circumference of a circle.	Module 6: Lesson 2: 264-267
b. Understand that the constant of proportionality between the circumference and diameter is equivalent to π.	Module 6: Lesson 1: 260-263
c. Explore the relationship between circumference and area using a visual model.	Module 6: Lesson 2: 264-267 Module 6: Lesson 3: 268-271
d. Use the formulas for circumference and area of circles appropriately to solve real-world and mathematical problems.	Module 6: Lesson 1: 260-263 Module 6: Lesson 2: 264-267 Module 6: Lesson 3: 268-271
7.GM.5 Write equations to solve problems involving the relationships between angles formed by two intersecting lines, including supplementary, complementary, vertical, and adjacent.	Module 6: Lesson 13: 307 Module 6: Lesson 14: 308
7.GM.6 Apply the concepts of two- and three-dimensional figures to real-world and mathematical situations.	
a. Understand that the concept of area is applied to two-dimensional figures such as triangles, quadrilaterals, and polygons.	Module 6: Lesson 4: 272-275 Module 6: Lesson 5: 276-280
b. Understand that the concepts of volume and surface area are applied to three-dimensional figures such as cubes, right rectangular prisms, and right triangular prisms.	Module 6: Lesson 8: 286-289 Module 6: Lesson 9: 290-293 Module 6: Lesson 12: 302-326
c. Decompose cubes, right rectangular prisms, and right triangular prisms into rectangles and triangles to derive the formulas for volume and surface area.	Module 6: Lesson 7: 282-285 Module 6: Lesson 9: 290-293
d. Use the formulas for area, volume, and surface area appropriately.	Module 6: Lesson 15: 309
Data Analysis, Statistics, and Probability	

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7.DSP.1 Investigate concepts of random sampling.	
a. Understand that a sample is a subset of a population and both possess the same characteristics.	Module 7: Lesson 10: 356-359
b. Differentiate between random and non-random sampling.	Module 7: Lesson 10: 356-359
c. Understand that generalizations from a sample are valid only if the sample is representative of the population.	Module 7: Lesson 10: 356-359
d. Understand that random sampling is used to gather a representative sample and supports valid inferences about the population.	Module 7: Lesson 10: 356-359
7.DSP.2 Draw inferences about a population by collecting multiple random samples of the same size to investigate variability in estimates of the characteristic of interest.	Module 7: Lesson 10: 356-359
7.DSP.3 Visually compare the centers, spreads, and overlap of two displays of data (i.e., dot plots, histograms, box plots) that are graphed on the same scale and draw inferences about this data.	Module 7: Lesson 1: 322-325 Module 7: Lesson 2: 326-329 Module 7: Lesson 3: 330-333
7.DSP.4 Compare the numerical measures of center (mean, median, mode) and variability (range, interquartile range, mean absolute deviation) from two random samples to draw inferences about the populations.	Module 7: Lesson PL1: 316-320 Module 7: Lesson 1: 322-325
7.DSP.5 Investigate the concept of probability of chance events.	
a. Determine probabilities of simple events.	Module 7: Lesson 5: 338-341 Module 7: Lesson 7: 344-347 Module 7: Lesson 9: 352-355
b. Understand that probability measures likelihood of a chance event occurring.	Module 7: Lesson 5: 338-341 Module 7: Lesson 7: 344-347 Module 7: Lesson 9: 352-355
c. Understand that the probability of a chance event is a number between 0 and 1.	Module 7: Lesson 5: 338-341 Module 7: Lesson 7: 344-347 Module 7: Lesson 9: 352-355
d. Understand that a probability closer to 1 indicates a likely chance event.	Module 7: Lesson 5: 338-341 Module 7: Lesson 7: 344-347 Module 7: Lesson 9: 352-355
e. Understand that a probability close to 12 indicates that a chance event is neither likely nor unlikely.	Module 7: Lesson 5: 338-341 Module 7: Lesson 7: 344-347 Module 7: Lesson 9: 352-355
f. Understand that a probability closer to 0 indicates an unlikely chance event.	Module 7: Lesson 5: 338-341 Module 7: Lesson 7: 344-347 Module 7: Lesson 9: 352-355
7.DSP.6 Investigate the relationship between theoretical and experimental probabilities for simple events.	
a. Determine approximate outcomes using theoretical probability.	Module 7: Lesson 8: 348-351
b. Perform experiments that model theoretical probability.	Module 7: Lesson 8: 348-351
c. Compare theoretical and experimental probabilities.	Module 7: Lesson 8: 348-351

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7.DSP.7 Apply the concepts of theoretical and experimental probabilities for simple events.	Module 7: Lesson 8: 348-351
a. Differentiate between uniform and non-uniform probability models (distributions).	Module 7: Lesson 8: 348-351
b. Develop both uniform and non-uniform probability models.	Module 7: Lesson 7: 344-347
c. Perform experiments to test the validity of probability models.	Module 7: Lesson 6: 342-343
7.DSP.8 Extend the concepts of simple events to investigate compound events.	Module 7: Lesson 8: 348-351
a. Understand that the probability of a compound event is between 0 and 1.	Module 7: Lesson 8: 348-351
b. Identify the outcomes in a sample space using organized lists, tables, and tree diagrams.	Module 7: Lesson 7: 344-347
c. Determine probabilities of compound events using organized lists, tables, and tree diagrams.	Module 7: Lesson 8: 348-351
d. Design and use simulations to collect data and determine probabilities.	Module 7: Lesson 6: 342-343
e. Compare theoretical and experimental probabilities for compound events.	Module 7: Lesson 8: 348-351

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Mathematical Process Standards	
1. Make sense of problems and persevere in solving them.	Module 2: Lesson PL2: 93-97 Module 3: Lesson PL1: 136-139 Module 5: Lesson PL1: 240-243 Module 5: Lesson PL2: 244-247
2. Reason both contextually and abstractly.	Module 1: Lesson 9: 70-73 Module 3: Lesson PL2: 140-143 Module 4: Lesson 5: 200
3. Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.	Module 2: Lesson PL2: 93-97 Module 5: Lesson PL1: 240-243
4. Connect mathematical ideas and real-world situations through modeling.	Module 4: Lesson PL2: 186-189 Module 7: Lesson 8: 370-372 Module 7: Lesson 4: 354-357
5. Use a variety of mathematical tools effectively and strategically.	Module 4: Lesson PL1: 182-185 Module 6: Lesson PL1: 280-283 Module 6: Lesson PL2: 284-287
6. Communicate mathematically and approach mathematical situations with precision.	Module 3: Lesson 3: 152-155 Module 3: Lesson 4: 156-159
7. Identify and utilize structure and patterns.	Module 4: Lesson 3: 198 Module 4: Lesson 8: 206-209
The Number System	
8.NS.1 Explore the real number system and its appropriate usage in real-world situations.	
a. Recognize the differences between rational and irrational numbers.	Module 1: Lesson 12: 82
b. Understand that all real numbers have a decimal expansion.	Module 1: Lesson 12: 82
c. Model the hierarchy of the real number system, including natural, whole, integer, rational, and irrational numbers.	provides opportunities: Module 1: Lesson 12: 82
8.NS.2 Estimate and compare the value of irrational numbers by plotting them on a number line.	
8.NS.3 Extend prior knowledge to translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Include the conversion of repeating decimal numbers to fractions.	Module 1: Lesson 12: 82
Functions	
8.F.1 Explore the concept of functions.	
a. Understand that a function assigns to each input exactly one output.	Module 4: Lesson 7: 202-205 Module 4: Lesson 8: 206-209
b. Relate inputs (□□-values or domain) and outputs (□□-values or range) to independent and dependent variables.	Module 4: Lesson 7: 202-205
c. Translate among the multiple representations of a function, including mappings, tables, graphs, equations, and verbal descriptions.	Module 4: Lesson 7: 202-205
d. Determine if a relation is a function using multiple representations, including mappings, tables, graphs,	

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equations, and verbal descriptions.	
e. Graph a function from a table of values. Understand that the graph and table both represent a set of ordered pairs of that function.	
8.F.2 Compare multiple representations of two functions, including mappings, tables, graphs, equations, and verbal descriptions, in order to draw conclusions.	
8.F.3 Investigate the differences between linear and nonlinear functions using multiple representations (i.e. tables, graphs, equations, and verbal descriptions).	
a. Define an equation in slope-intercept form (□□=□□□□+□□) as being a linear function.	
b. Recognize that the graph of a linear function has a constant rate of change.	
c. Provide examples of nonlinear functions.	
8.F.4 Apply the concepts of linear functions to real-world and mathematical situations.	
a. Understand that the slope is the constant rate of change and the □□-intercept is the point where □□ = 0.	
b. Determine the slope and the □□-intercept of a linear function given multiple representations, including two points, tables, graphs, equations, and verbal descriptions.	
c. Construct a function in slope-intercept form that models a linear relationship between two quantities.	
d. Interpret the meaning of the slope and the □□-intercept of a linear function in the context of the situation.	
e. Explore the relationship between linear functions and arithmetic sequences.	
8.F.5 Apply the concepts of linear and nonlinear functions to graphs in real-world and mathematical situations.	
a. Analyze and describe attributes of graphs of functions (e.g., constant, increasing/decreasing, linear/nonlinear, maximum/minimum, discrete/continuous).	
b. Sketch the graph of a function from a verbal description.	
c. Write a verbal description from the graph of a function with and without scales.	
Expressions, Equations, and Inequalities	
8.EEI.1 Understand and apply the laws of exponents (i.e. product rule, quotient rule, power to a power, product to a power, quotient to a power, zero power property, negative exponents) to simplify numerical expressions that include integer exponents.	Module 2: Lesson 1: 98-101 Module 2: Lesson 2: 102-105 Module 2: Lesson 3: 106-109 Module 2: Lesson 4: 110-113 Module 2: Lesson 5: 114-118 Module 2: Lesson 7: 120-123
8.EEI.2 Investigate concepts of square and cube roots.	
a. Find the exact and approximate solutions to equations of the form □□2=□□ and □□3=□□ where □□ is a positive	Module 2: Lesson 7: 120-123 Module 2: Lesson 8: 124-127

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rational number.	Module 2: Lesson 9: 128-130
b. Evaluate square roots of perfect squares.	Module 2: Lesson 7: 120-123 Module 2: Lesson 8: 124-127 Module 2: Lesson 10: 131-134
c. Evaluate cube roots of perfect cubes.	Module 7: Lesson 9: 372-375 Module 7: Lesson 10: 376-379
d. Recognize that square roots of non-perfect squares are irrational.	supports standard: Module 2: Lesson 7: 120-123 Module 2: Lesson 8: 124-127
8.EEI.3 Explore the relationship between quantities in decimal and scientific notation.	
a. Express very large and very small quantities in scientific notation in the form □□•10□□=□□ where 1≤□□<10 and □□ is an integer.	Module 2: Lesson 5: 114-118
b. Translate between decimal notation and scientific notation.	supports standard: Module 2: Lesson 5: 114-118
c. Estimate and compare the relative size of two quantities in scientific notation.	provides opportunities: Module 2: Lesson 5: 114-118
8.EEI.4 Apply the concepts of decimal and scientific notation to solve real-world and mathematical problems.	
a. Multiply and divide numbers expressed in both decimal and scientific notation.	Module 2: Lesson 5: 114-118
b. Select appropriate units of measure when representing answers in scientific notation.	Module 2: Lesson 5: 114-118
c. Translate how different technological devices display numbers in scientific notation.	Module 2: Lesson 5: 114-118
8.EEI.5 Apply concepts of proportional relationships to real-world and mathematical situations.	
a. Graph proportional relationships.	Module 5: Lesson PL2: 244-247
b. Interpret unit rate as the slope of the graph.	Module 5: Lesson PL2: 244-247
c. Compare two different proportional relationships given multiple representations, including tables, graphs, equations, diagrams, and verbal descriptions.	provides opportunities: Module 5: Lesson PL2: 244-247
8.EEI.6 Apply concepts of slope and □□-intercept to graphs, equations, and proportional relationships.	
a. Explain why the slope, □□, is the same between any two distinct points on a non-vertical line using similar triangles.	Module 4: Lesson 12: 222-223 Module 4: Lesson 13: 224-225
b. Derive the slope-intercept form (□□=□□□□+□□) for a non-vertical line.	Module 5: Lesson 3: 254-255
c. Relate equations for proportional relationships (□□=□□□□) with the slope-intercept form (□□=□□□□+□□) where □□=0.	Module 5: Lesson 3: 254-255
8.EEI.7 Extend concepts of linear equations and inequalities in one variable to more complex multi-step equations and inequalities in real-world and mathematical situations.	
a. Solve linear equations and inequalities with rational	Module 3: Lesson 1: 144-147

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number coefficients that include the use of the distributive property, combining like terms, and variables on both sides.	Module 3: Lesson 2: 148-151 Module 3: Lesson 3: 152-155 Module 3: Lesson 4: 156-159 Module 3: Lesson 5: 160-161 Module 3: Lesson 6: 162-165 Module 3: Lesson 7: 166-169 Module 3: Lesson 8: 170-171 Module 3: Lesson 9: 172-173 Module 3: Lesson 10: 174-177
b. Recognize the three types of solutions to linear equations: one solution (□□=□□), infinitely many solutions (□□=□□), or no solutions (□□=□□).	Module 3: Lesson 1: 144-147 Module 3: Lesson 2: 148-151 Module 3: Lesson 3: 152-155 Module 3: Lesson 4: 156-159 Module 3: Lesson 5: 160-161 Module 3: Lesson 6: 162-165 Module 3: Lesson 7: 166-169 Module 3: Lesson 8: 170-171 Module 3: Lesson 9: 172-173 Module 3: Lesson 10: 174-177
c. Generate linear equations with the three types of solutions.	provides opportunities: Module 3: Lesson 1: 144-147 Module 3: Lesson 2: 148-151 Module 3: Lesson 3: 152-155 Module 3: Lesson 4: 156-159 Module 3: Lesson 5: 160-161 Module 3: Lesson 6: 162-165 Module 3: Lesson 7: 166-169 Module 3: Lesson 8: 170-171 Module 3: Lesson 9: 172-173 Module 3: Lesson 10: 174-177
d. Justify why linear equations have a specific type of solution.	provides opportunities: Module 3: Lesson 1: 144-147 Module 3: Lesson 2: 148-151 Module 3: Lesson 3: 152-155 Module 3: Lesson 4: 156-159 Module 3: Lesson 5: 160-161 Module 3: Lesson 6: 162-165 Module 3: Lesson 7: 166-169 Module 3: Lesson 8: 170-171 Module 3: Lesson 9: 172-173 Module 3: Lesson 10: 174-177
8.EEI.8 Investigate and solve real-world and mathematical problems involving systems of linear equations in two variables with integer coefficients and solutions.	
a. Graph systems of linear equations and estimate their point of intersection.	Module 4: Lesson 10: 214-217 Module 4: Lesson 11: 218-221 Module 5: Lesson 9: 270-274

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b. Understand and verify that a solution to a system of linear equations is represented on a graph as the point of intersection of the two lines.	Module 5: Lesson 9: 270-274
c. Solve systems of linear equations algebraically, including methods of substitution and elimination, or through inspection.	Module 5: Lesson 10: 275-278
d. Understand that systems of linear equations can have one solution, no solution, or infinitely many solutions.	Module 3: Lesson 1: 144-147 Module 3: Lesson 2: 148-151 Module 3: Lesson 3: 152-155 Module 3: Lesson 4: 156-159 Module 3: Lesson 5: 160-161 Module 3: Lesson 6: 162-165 Module 3: Lesson 7: 166-169 Module 3: Lesson 8: 170-171 Module 3: Lesson 9: 172-173 Module 3: Lesson 10: 174-177
Geometry and Measurement	
8.GM.1 Investigate the properties of rigid transformations (rotations, reflections, translations) using a variety of tools (e.g., grid paper, reflective devices, graphing paper, technology).	
a. Verify that lines are mapped to lines, including parallel lines.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 7: 312-315 Module 6: Lesson 8: 316-319 Module 6: Lesson 9: 320-323
b. Verify that corresponding angles are congruent.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 3: 296-299 Module 6: Lesson 10: 324-327
c. Verify that corresponding line segments are congruent.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 10: 324-327
8.GM.2 Apply the properties of rigid transformations (rotations, reflections, translations).	
a. Rotate geometric figures 90, 180, and 270 degrees, both clockwise and counterclockwise, about the origin.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 7: 312-315 Module 6: Lesson 8: 316-319
b. Reflect geometric figures with respect to the □□-axis and/or □□-axis.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 7: 312-315
c. Translate geometric figures vertically and/or horizontally.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 7: 312-315
d. Recognize that two-dimensional figures are only congruent if a series of rigid transformations can be performed to map the pre-image to the image.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 10: 324-327
e. Given two congruent figures, describe the series of rigid transformations that justifies this congruence.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 10: 324-327
8.GM.3 Investigate the properties of transformations (rotations, reflections, translations, dilations) using a variety of tools (e.g., grid paper, reflective devices, graphing paper,	

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dynamic software).	
a. Use coordinate geometry to describe the effect of transformations on two-dimensional figures.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 7: 312-315 Module 6: Lesson 9: 320-323
b. Relate scale drawings to dilations of geometric figures.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 7: 312-315 Module 6: Lesson 9: 320-323
8.GM.4 Apply the properties of transformations (rotations, reflections, translations, dilations).	
a. Dilate geometric figures using scale factors that are positive rational numbers.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 7: 312-315 Module 6: Lesson 9: 320-323
b. Recognize that two-dimensional figures are only similar if a series of transformations can be performed to map the pre-image to the image.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 7: 312-315
c. Given two similar figures, describe the series of transformations that justifies this similarity.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 1: 288-291 Module 6: Lesson 7: 312-315
d. Use proportional reasoning to find the missing side lengths of two similar figures.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 2: 292-295
8.GM.5 Extend and apply previous knowledge of angles to properties of triangles, similar figures, and parallel lines cut by a transversal.	
a. Discover that the sum of the three angles in a triangle is 180 degrees.	Module 6: Lesson PL1: 280-283 Module 6: Lesson PL2: 284-287
b. Discover and use the relationship between interior and exterior angles of a triangle.	Module 6: Lesson PL1: 280-283 Module 6: Lesson PL2: 284-287
c. Identify congruent and supplementary pairs of angles when two parallel lines are cut by a transversal.	
d. Recognize that two similar figures have congruent corresponding angles.	Module 6: Lesson PL1: 280-283 Module 6: Lesson 5: 304-307
8.GM.6 Use models to demonstrate a proof of the Pythagorean Theorem and its converse.	Module 6: Lesson PL1: 280-283 Module 7: Lesson 8: 370-372 Module 7: Lesson 9: 372-375
8.GM.7 Apply the Pythagorean Theorem to model and solve real-world and mathematical problems in two and three dimensions involving right triangles.	Module 6: Lesson PL1: 280-283 Module 7: Lesson 8: 370-372 Module 7: Lesson 9: 372-375
8.GM.8 Find the distance between any two points in the coordinate plane using the Pythagorean Theorem.	Module 6: Lesson PL1: 280-283 Module 7: Lesson 9: 372-375 Module 7: Lesson 10: 376-379
8.GM.9 Solve real-world and mathematical problems involving volumes of cones, cylinders, and spheres and the surface area of cylinders.	Module 6: Lesson PL1: 280-283 Module 7: Lesson 5: 358-362 Module 7: Lesson 6: 362-365
Data Analysis, Statistics, and Probability	
8.DSP.1 Investigate bivariate data.	

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a. Collect bivariate data.	Module 4: Lesson 3: 198 Module 5: Lesson 4: 256-259
b. Graph the bivariate data on a scatter plot.	Module 4: Lesson 2: 194-197
c. Describe patterns observed on a scatter plot, including clustering, outliers, and association (positive, negative, no correlation, linear, nonlinear).	Module 4: Lesson 3: 198
8.DSP.2 Draw an approximate line of best fit on a scatter plot that appears to have a linear association and informally assess the fit of the line to the data points.	Module 4: Lesson 2: 194-197
8.DSP.3 Apply concepts of an approximate line of best fit in real-world situations.	
a. Find an approximate equation for the line of best fit using two appropriate data points.	Module 4: Lesson 2: 194-197
b. Interpret the slope and intercept.	Module 5: Lesson 3: 254-255 Module 5: Lesson 7: 268
c. Solve problems using the equation.	Module 3: Lesson 6: 162-165 Module 5: Lesson 5: 260-263 Module 5: Lesson 6: 264-267
8.DSP.4 Investigate bivariate categorical data in two-way tables.	
a. Organize bivariate categorical data in a two-way table.	supports standard: Module 3: Lesson 7: 166-169
b. Interpret data in two-way tables using relative frequencies.	supports standard: Module 3: Lesson 7: 166-169
c. Explore patterns of possible association between the two categorical variables.	Module 4: Lesson 3: 198
8.DSP.5 Organize data in matrices with rational numbers and apply to real-world and mathematical situations.	
a. Understand that a matrix is a way to organize data.	
b. Recognize that a □□×□□ matrix has □□ rows and □□ columns.	
c. Add and subtract matrices of the same size.	
d. Multiply a matrix by a scalar.	