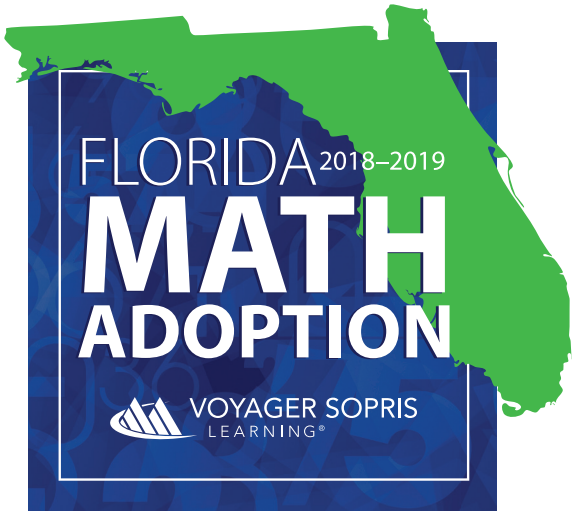

Vmath®

LEVEL G

STANDARDS

2018-2019 STATE OF FLORIDA INSTRUCTIONAL MATERIALS ADOPTION STANDARDS ALIGNMENT COURSE STANDARDS/BENCHMARKS (Form IM7)

BID ID:	**3476**
SUBMISSION TITLE:	**Vmath, Level G**
GRADE LEVEL:	**6-8**
COURSE TITLE:	**M/J Mathematics 1**
COURSE CODE:	**1205010**
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Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.EE.1.1	Write and evaluate numerical expressions involving whole-number exponents.	Module 4: Lesson 1: 152-153
MAFS.6.EE.1.2	Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtracty from 5" as 5 – y. b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms. c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in realworld problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6 s^2$ to find the volume and surface area of a cube with sides of length s = 1/2.	Module 4: Lesson 2: 154-157 Module 4: Lesson 3: 158-161 Module 4: Lesson 4: 162

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.EE.1.3	Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.	Module 4: Lesson 4: 162 Module 4: Lesson 5: 163
MAFS.6.EE.1.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.	Module 4: Lesson 3: 158-161
MAFS.6.EE.2.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	Module 4: Lesson 5: 163 Module 4: Lesson 11: 182-185

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.EE.2.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	Module 4: Lesson 2: 154-157 Module 4: Lesson 3: 158-161 Module 4: Lesson 6: 164-165 Module 4: Lesson 10: 178-181
MAFS.6.EE.2.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all non-negative rational numbers.	Module 4: Lesson 7: 166-169 Module 4: Lesson 8: 170-173 Module 4: Lesson 10: 178-181 Module 4: Lesson 13: 190-193 Module 4: Lesson 14: 194-197 Module 4: Lesson 15: 198-201
MAFS.6.EE.2.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	Module 4: Lesson 11: 182-185 Module 4: Lesson 12: 186-189

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.EE.3.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.	Module 4: Lesson 9: 174-177
MAFS.6.G.1.1	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: 260-263 Module 6: Lesson 2: 264-267 Module 6: Lesson 3: 268-271 Module 6: Lesson 5: 276-279 Module 6: Lesson 6: 280-281 Module 6: Lesson 7: 282-285
MAFS.6.G.1.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = B h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	Module 6: Lesson 8: 286-287

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.G.1.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	Module 6: Lesson 10: 292-295
MAFS.6.NS.1.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?	Module 3: Lesson 6: 124-127 Module 3: Lesson 7: 128-131 Module 3: Lesson 8: 132-135 Module 3: Lesson 9: 136-139 Module 3: Lesson 10: 140-141
MAFS.6.NS.2.2	Fluently divide multi-digit numbers using the standard algorithm.	Module 1: Lesson 3: 10-13 Module 1: Lesson 7: 26-29 Module 2: Lesson 3: 60-63
MAFS.6.NS.2.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	Module 2: Lesson 1: 52-55 Module 2: Lesson 2: 56-59 Module 2: Lesson 3: 60-63

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.NS.2.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express 36 + 8 as 4 (9 + 2).	Module 2: Lesson 4: 64-67 Module 2: Lesson 5: 68-71 Module 2: Lesson 6: 72-75
MAFS.6.NS.3.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	Module 2: Lesson 10: 88-91 Module 3: Lesson 1: 104-107 Module 3: Lesson 2: 108-111 Module 3: Lesson 3: 112-115 Module 3: Lesson 4: 116-119 Module 3: Lesson 5: 120-123

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.NS.3.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	Module 2: Lesson 8: 116-119 Module 2: Lesson 10: 88-91 Module 7: Lesson 10: 340-343

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.NS.3.7	Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret -3 > -7 as a statement that -3 is located to the right of -7 on a number line oriented from left to right. b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write -3 oC > -7 oC to express the fact that -3 oC is warmer than -7 oC. c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of -30 dollars, write |-30| = 30 to describe the size of the debt in dollars. d. Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.	Module 2: Lesson 7: 76-79 Module 2: Lesson 8: 80-83 Module 2: Lesson 9: 84-87 Module 2: Lesson 10: 88-91
MAFS.6.NS.3.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	Module 7: Lesson 10: 340-343

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.RP.1.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."	Module 5: Lesson 1: 214-215 Module 5: Lesson 2: 216-219
MAFS.6.RP.1.2	Understand the concept of a unit rate a/b associated with a ratio a:b with $b \neq 0$, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."	Module 5: Lesson 2: 216-219 Module 5: Lesson 3: 220-223

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.RP.1.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. e. Understand the concept of Pi as the ratio of the circumference of a circle to its diameter.	Module 5: Lesson 2: 216-219 Module 5: Lesson 3: 220-223 Module 5: Lesson 4: 224-227 Module 5: Lesson 5: 228-231 Module 5: Lesson 6: 232-235 Module 5: Lesson 7: 236-239 Module 5: Lesson 8: 240-243 Module 5: Lesson 9: 244-248 Module 5: Lesson 10: 249 Module 7: Lesson 10: 340-343

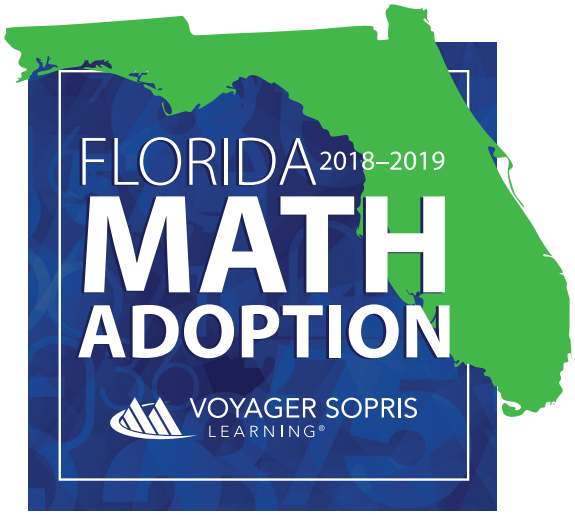
Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.SP.1.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.	Module 7: Lesson 4: 318-321 Module 7: Lesson 9: 336-339
MAFS.6.SP.1.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	Module 7: Lesson 3: 317
MAFS.6.SP.1.3	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 6: 326-330 Module 7: Lesson 7: 331 Module 7: Lesson 10: 340-343
MAFS.6.SP.2.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	Module 7: Lesson 4: 318-321 Module 7: Lesson 5: 322-325 Module 7: Lesson 8: 332-335 Module 7: Lesson 9: 336-339

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.6.SP.2.5	Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	Module 7: Lesson 1: 308-311 Module 7: Lesson 2: 312-316 Module 7: Lesson 6: 326-330 Module 7: Lesson 7: 331 Module 7: Lesson 8: 332-335
MAFS.K12.MP.1.1	Make sense of problems and persevere in solving them.	Module 2: Lesson PL1: 44-47 Module 5: Lesson 5: 228-231
MAFS.K12.MP.2.1	Reason abstractly and quantitatively.	Module 1: Lesson 4: 14-17 Module 3: Lesson PL1: 98-101
MAFS.K12.MP.3.1	Construct viable arguments and critique the reasoning of others.	Module 1: Lesson 6: 22-25 Module 2: Lesson PL1: 44-47
MAFS.K12.MP.4.1	Model with mathematics.	Module 1: Lesson 8: 30-31 Module 2: Lesson PL2: 48-51 Module 3: Lesson PL2: 102-103 Module 6: Lesson PL1: 254-255

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.K12.MP.5.1	Use appropriate tools strategically.	Module 6: Lesson PL1: 254-255 Module 6: Lesson PL2: 256-259 Module 7: Lesson PL2: 307
MAFS.K12.MP.6.1	Attend to precision.	Module 4: Lesson PL1: 146-150
MAFS.K12.MP.7.1	Look for and make use of structure.	Module 1: Lesson 10: 36-39 Module 4: Lesson PL1: 146-150 Module 4: Lesson PL2: 151 Module 7: Lesson PL1: 302-306
MAFS.K12.MP.8.1	Look for and express regularity in repeated reasoning.	Module 1: Lesson 2: 6-9
LAFS.6.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.	Each lesson begins with a collaborative conversation reviewing preskills. These reviews provide opportunities to discuss grade 6 topics.
LAFS.6.SL.1.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.	Module 6: Lesson 6: 326-329 Module 6: Lesson 7: 331 (Math Flash)
LAFS.6.SL.1.3	Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.	Each Vmath lesson has either an Explain It or Problem-Solving box where students are able to use their own words to answer questions about the lesson skill. The third problem of the Check Up of every lesson is Write Math and students must explain a concept that was covered. Some lessons have Crititical Thinking or Algebraic Thinking questions which are open-ended.

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
LAFS.6.SL.2.4	Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.	Each Vmath lesson has either an Explain It or Problem-Solving box where students are able to use their own words to answer questions about the lesson skill. The third problem of the Check Up of every lesson is Write Math and students must explain a concept that was covered. Some lessons have Crititical Thinking or Algebraic Thinking questions which are open-ended.
LAFS.68.RST.1.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.	Students have the opportunity to meet this standard in each lesson as they complete they read instructions and complete their independent work.
LAFS.68.RST.2.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.	The Vmath Live Animated Glossary provides support for this standard.
LAFS.68.RST.3.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).	Module 2: Lesson PL2: 48-51 Module 4: Lesson 6: 164-165 Module 4: Lesson 9: 174-177 Module 4: Lesson 9: 178-181 Module 6: Lesson 1: 260-263 Module 7: Lesson PL1: 302-305 Module 7: Lesson PL2: 307 Module 7: Lesson 4: 318-321 Module 7: Lesson 5: 322-325 Module 7: Lesson 8: 332-335 Module 7: Lesson 9: 336-349 Module 7: Lesson 10: 340-343

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
LAFS.68.WHST.1.1	Write arguments focused on discipline-specific content.	Each Vmath lesson has either an Explain It or Problem-Solving box where students are able to use their own words to answer questions about the lesson skill.
LAFS.68.WHST.2.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Each Vmath lesson has either an Explain It or Problem-Solving box where students are able to use their own words to answer questions about the lesson skill. The third problem of the Check Up of every lesson is Write Math and students must explain a concept that was covered. Some lessons have Crititical Thinking or Algebraic Thinking questions which are open-ended.
ELD.K12.ELL.MA.1	English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.	The Vmath Live Animated Glossary provides support for this standard.
ELD.K12.ELL.SI.1	English language learners communicate for social and instructional purposes within the school setting.	Each lesson includes ELL differentiation and support to help students communicate for instructional purposes.



Vmath®

LEVEL H

STANDARDS

2018-2019 STATE OF FLORIDA INSTRUCTIONAL MATERIALS ADOPTION STANDARDS ALIGNMENT COURSE STANDARDS/BENCHMARKS (Form IM7)

BID ID:	**3477**
SUBMISSION TITLE:	**Vmath, Level H**
GRADE LEVEL:	**6-8**
COURSE TITLE:	**M/J Mathematics 2**
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Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.7.EE.1.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	Module 4: Lesson 1: 138-141 Module 4: Lesson 2: 142-145
MAFS.7.EE.1.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*	Module 4: Lesson 2: 142-145
MAFS.7.EE.2.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*	Module 4: Lesson 3: 146-147 Module 4: Lesson 4: 148-151 Module 4: Lesson 5: 152-155 Module 4: Lesson 6: 156-157 Module 4: Lesson 7: 158-161

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.7.EE.2.4	Use variables to represent quantities in a realworld or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*	Module 4: Lesson 3: 146-147 Module 4: Lesson 4: 148-151 Module 4: Lesson 5: 152-155 Module 4: Lesson 6: 156-157 Module 4: Lesson 7: 158-161 Module 4: Lesson 8: 162-165 Module 4: Lesson 9: 166-170 Module 4: Lesson 10: 171
MAFS.7.G.1.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	Module 5: Lesson 1: 184-187 Module 5: Lesson 2: 188-191

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.7.G.1.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	Module 5: Lesson 1: 184-187 Module 5: Lesson 2: 188-191
MAFS.7.G.1.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	
MAFS.7.G.2.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	Module 6: Lesson 1: 224-227 Module 6: Lesson 2: 228-231 Module 6: Lesson 3: 232-235
MAFS.7.G.2.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	Module 6: Lesson 13: 271 Module 6: Lesson 14: 272
MAFS.7.G.2.6	Solve real-world and mathematical problems involving area, volume and surface area of twoand three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	Module 6: Lesson 4: 236-239 Module 6: Lesson 5: 240-244 Module 6: Lesson 6: 245 Module 6: Lesson 7: 246-249 Module 6: Lesson 8: 250-253 Module 6: Lesson 9: 254-257 Module 6: Lesson 10: 258-261 Module 6: Lesson 11: 262-265 Module 6: Lesson 12: 266-270

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.7.NS.1.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. b. Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.	Module 2: Lesson 1: 48-51 Module 2: Lesson 2: 52-55 Module 2: Lesson 3: 56-59 Module 2: Lesson 4: 60-63 Module 2: Lesson 5: 64 Module 2: Lesson 6: 65 Module 2: Lesson 7: 66-69 Module 2: Lesson 8: 70-73 Module 2: Lesson 9: 74-77 Module 2: Lesson 10: 78-81

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.7.NS.1.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then –(p/q) = (–p)/q = p/(–q). Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	Module 3: Lesson 1: 92-95 Module 3: Lesson 2: 96-99 Module 3: Lesson 3: 100-103 Module 3: Lesson 4: 104-107 Module 3: Lesson 5: 108-112 Module 3: Lesson 6: 113-114 Module 3: Lesson 7: 115 Module 3: Lesson 8: 116-119 Module 3: Lesson 9: 120-123 Module 3: Lesson 10: 124-127

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.7.NS.1.3	Solve real-world and mathematical problems involving the four operations with rational numbers.	Module 2: Lesson 4: 60-63 Module 2: Lesson 5: 64 Module 2: Lesson 6: 65 Module 2: Lesson 9: 74-77 Module 2: Lesson 10: 78-81 Module 3: Lesson 9: 120-123
MAFS.7.RP.1.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.*	Module 5: Lesson 3: 228 Module 5: Lesson 5: 194 Module 5: Lesson 6: 195 Module 5: Lesson 9: 204-207

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.7.RP.1.2	Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn. d.* Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.	Module 5: Lesson 3: 192 Module 5: Lesson 4: 193 Module 5: Lesson 5: 194 Module 5: Lesson 6: 195 Module 5: Lesson 9: 204-207 Module 5: Lesson 10: 208-211

Benchmark Code	Benchmark	Lessons Where Standard/Benchmark Is Directly Addressed In Major Tool (Most In–Depth Coverage Listed First)
MAFS.7.RP.1.3	Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*	Module 5: Lesson 7: 196-199 Module 5: Lesson 8: 200-203
MAFS.7.SP.1.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	Module 7: Lesson 10: 320-323
MAFS.7.SP.1.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*	Module 7: Lesson 10: 320-323

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MAFS.7.SP.2.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*	Module 7: Lesson 1: 286-289 Module 7: Lesson 2: 290-293 Module 7: Lesson 3: 294-297
MAFS.7.SP.2.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*	Module 7: Lesson 1: 286-289 Module 7: Lesson 2: 290-293 Module 7: Lesson 3: 294-297
MAFS.7.SP.3.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	Module 7: Lesson 5: 302-305 Module 7: Lesson 7: 308-311 Module 7: Lesson 9: 316-319

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MAFS.7.SP.3.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*	Module 7: Lesson 6: 306-307
MAFS.7.SP.3.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.* b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*	Module 7: Lesson 8: 312-315

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MAFS.7.SP.3.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*	Module 7: Lesson 4: 298-301 Module 7: Lesson 5: 302-305 Module 7: Lesson 7: 308-311 Module 7: Lesson 8: 312-315
MAFS.K12.MP.1.1	Make sense of problems and persevere in solving them.	Module 4: Lesson PL1: 130-133 Module 4: Lesson PL2: 134-137 Module 6: Lesson 15: 273
MAFS.K12.MP.2.1	Reason abstractly and quantitatively.	Module 1: Lesson 8: 26-29 Module 3: Lesson PL1: 86-90 Module 3: Lesson PL2: 91 Module 7: Lesson PL1: 280-284
MAFS.K12.MP.3.1	Construct viable arguments and critique the reasoning of others.	Module 7: Lesson 9: 316-319 Module 7: Lesson 10: 320-323

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MAFS.K12.MP.4.1	Model with mathematics.	Module 1: Lesson 1: 2-3 Module 1: Lesson 4: 12-13
MAFS.K12.MP.5.1	Use appropriate tools strategically.	Module 6: Lesson PL1: 216-219 Module 6: Lesson PL2: 220-223
MAFS.K12.MP.6.1	Attend to precision.	Module 5: Lesson PL1: 176-179 Module 5: Lesson PL2: 180-183
MAFS.K12.MP.7.1	Look for and make use of structure.	Module 2: Lesson PL2: 44-47
MAFS.K12.MP.8.1	Look for and express regularity in repeated reasoning.	Module 5: Lesson 10: 208-211
LAFS.68.RST.1.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.	Students have the opportunity to meet this standard in each lesson as they complete they read instructions and complete their independent work.
LAFS.68.RST.2.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.	The Vmath Live Animated Glossary provides support for this standard.
LAFS.68.RST.3.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).	Module 7: Lesson PL2: 285 Module 7: Lesson 1: 286-289 Module 7: Lesson 2: 290-293 Module 7: Lesson 3: 294-297 Module 7: Lesson 4: 298-301
LAFS.68.WHST.1.1	Write arguments focused on *discipline-specific content*.	Each Vmath lesson has either an Explain It or Problem-Solving box where students are able to use their own words to answer questions about the lesson skill.

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LAFS.68.WHST.2.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Each Vmath lesson has either an Explain It or Problem-Solving box where students are able to use their own words to answer questions about the lesson skill. The third problem of the Check Up of every lesson is Write Math and students must explain a concept that was covered. Some lessons have Crititical Thinking or Algebraic Thinking questions which are open-ended.
LAFS.7.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacherled) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.	Each lesson begins with a collaborative conversation reviewing preskills. These reviews provide opportunities to discuss grade 7 topics.
LAFS.7.SL.1.2	Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.	Module 7: Lesson 1: 286-289 Module 7: Lesson 2: 290-293
LAFS.7.SL.1.3	Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.	Each Vmath lesson has either an Explain It or Problem-Solving box where students are able to use their own words to answer questions about the lesson skill. The third problem of the Check Up of every lesson is Write Math and students must explain a concept that was covered. Some lessons have Crititical Thinking or Algebraic Thinking questions which are open-ended.

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LAFS.7.SL.2.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.	Each Vmath lesson has either an Explain It or Problem-Solving box where students are able to use their own words to answer questions about the lesson skill. The third problem of the Check Up of every lesson is Write Math and students must explain a concept that was covered. Some lessons have Crititical Thinking or Algebraic Thinking questions which are open-ended.
ELD.K12.ELL.MA.1	English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.	The Vmath Live Animated Glossary provides support for this standard.
ELD.K12.ELL.SI.1	English language learners communicate for social and instructional purposes within the school setting.	Each lesson includes ELL differentiation and support to help students communicate for instructional purposes.