

CCSU Comprehensive Curriculum for Math

Grade Level 3

Power Standard #1 – Numbers and Operations: Students understand value and apply properties and operations of numbers. (Aligns with Vermont Standard 7.6)

Power Standard #2 – Geometric Figures: Students know and apply the attributes of geometric figures. (Aligns with Vermont Standard 7.7)

Power Standard #3 – Units of Measure: Students know and use units of measure. (Aligns with Vermont Standard 7.7)

Power Standard #4 – Patterns, Equations, and Inequalities: Students identify and extend patterns to express relationships between and among variables, and solve equations and inequalities. (Aligns with Vermont Standard 7.8)

Power Standard #5 – Data: Students represent, interpret, and predict using data. (Aligns with Vermont Standard 7.9)

Power Standard #6 – Probability: Students find probability theoretically and experimentally. (Aligns with Vermont Standard 7.9)

Power Standard #7 – Problem Solving: Students use a variety of approaches to solve problems and communicate solutions. (Aligns with Vermont Standard 7.10)

Grade Level 3, Power Standard 1

CCSU Power Standard #1: Students understand value and apply properties and operations of numbers. (Aligns with Vermont Standard 7.6)

Concepts to Emphasize: Whole Number, Fraction, Multiplication / Division, Numerator / Denominator, Factor

Aligns with Vermont Standards	Vermont Grade Cluster Expectations <i>Competency Focus</i>	Focus and Learning Opportunities	CCSU Power Indicators <i>Proficiency Focus</i>
7.6	<p>M3:1: Demonstrates conceptual understanding of rational numbers with respect to whole numbers from 0 to 999 through equivalency, composition, decomposition, or place value using models, explanations, or other representations; and</p> <p>positive fractional numbers (benchmark fractions: $a/2$, $a/3$, $a/4$, $a/6$, or $a/8$, where a is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area and set models where the number of parts in the whole is equal to the denominator; and decimals (within a context of <u>money</u>) as a part of 100 using models, explanations, or other representations.</p> <p style="text-align: right;">M(N&O)–3–1</p>	<p>Focus:</p> <ul style="list-style-type: none"> • Apply place-value concepts on 4 digit numbers • Find equivalent names for numbers • Read/write 3-digit decimals • Identify place value in decimal • Convert between mixed numbers and fractions • Find equivalent fractions • Identify fractional part of a set/region/number line <p>Learning Opportunities: 1.1, 1.3, 1.6, 5.11, 5.8, 5.9, 8.1, 8.3, 8.4, 8.5, 8.6</p>	<p>Identify and name the value of each digit in a four-digit Number (1a)</p> <p>Read and write numbers up to 9,999 (1b)</p> <p>Identify sixths and eighths of a whole and set (1e)</p> <p>Compare fractions (halves, thirds, fourths) (1f)</p> <p>Use decimals in the context of money (1h)</p>

	<p>M3:2: Demonstrates understanding of the relative magnitude of numbers <u>from 0 to 999</u> by ordering whole numbers; by comparing whole numbers to benchmark whole numbers (100, 250, 500, 1000); or by <u>comparing whole numbers to each other</u>; and <u>comparing or identifying equivalent positive fractional numbers ($a/2, a/3, a/4$ where a is a whole number greater than 0 and less than or equal to the denominator)</u> using models, number lines, or explanations.</p> <p style="text-align: right;">M(N&O)–3–2</p>	<p>Focus:</p> <ul style="list-style-type: none"> • Read/write and compare 5, 6 and 7 digit whole numbers • Identify place value in whole numbers up to 5 digits • Compare and order decimals • Read/write 1 and 2 digit decimals • Compare and order fractions <p>Learning Opportunities: 5.1- 5.4, 5.7, 5.9, 5.11, 8.5,</p>	<p>Find equivalent fractions for halves, thirds, and fourths (1g)</p> <p>Identify sixths and eighths of a whole and set (1h)</p> <p>Compare fractions (halves, thirds, fourths) (1f)</p> <p>Use decimals in the context of money (1h)</p>
	<p>M3:3: Demonstrates conceptual understanding of mathematical operations <u>by describing or illustrating the inverse relationship between addition and subtraction of whole numbers</u>; and <u>the relationship between repeated addition and multiplication using models, number lines, or explanations</u>.</p> <p style="text-align: right;">M(N&O)–3–3</p>	<p>Focus:</p> <ul style="list-style-type: none"> • Recognize and know square products • Interpret remainder in division problems <p>Learning Opportunities: • 7.1, 7.2, 9.8,</p>	<p>Solve multiplication problems using the area model, repeated addition, and equal groups (1d)</p>
	<p>M3:4: <u>Accurately solves problems involving addition and subtraction with regrouping; the concept of multiplication; and addition or subtraction of decimals (in the context of money)</u>.</p> <p style="text-align: right;">M(N&O)—3–4</p>	<p>Focus:</p> <ul style="list-style-type: none"> • Solve addition/subtraction multi-digit number stories • Add/subtract multi-digit numbers • Understand function/placement of parentheses in number sentences • Solve fraction number stories • Solve number stories involving positive/negative numbers • Use partial-products algorithm or the lattice method to multiply multi-digit numbers by 1 or 2 digits 	<p>Estimate and compute addition and subtraction problems involving regrouping (1c)</p>

		<ul style="list-style-type: none"> • Solve number stories involving equal groups by using multiplication • Solve number stories involving equal sharing/grouping • Add/subtract decimals as money <p>Learning Opportunities: 2.2, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 4.1,4.2, 4.3, 4.4, 7.4, 7.5, 8.7, 9.1,9.5, 9.7, 9.9, 9.13</p>	
	No M3:5 at this grade level (money)	<p>Focus:</p> <ul style="list-style-type: none"> • Count combinations of bills and coins and write total in dollars and cents notation <p>Learning Opportunities: 1.9, 1.10</p>	Use decimals in the context of money (1h)
	M3:6: Mentally adds and subtracts whole numbers facts through twenty with accuracy.	<p>Focus:</p> <ul style="list-style-type: none"> • Knows basic addition/subtraction facts • Complete addition/subtraction fact and number families • Knows multiplication facts • Complete multiplication/division fact and number families <p>Learning Opportunities: 1.3, 1.4, 1.6, 2.1, 4.5, 4.6, 4.9,7.2, 7.3, 10.2, 10.5, 10.6, 10.9</p>	
	M3:7: Estimates and evaluates the reasonableness of solutions appropriate to grade level.	<p>Focus:</p> <ul style="list-style-type: none"> • Estimates answers to multi-digit addition/subtraction problems • Make ballpark estimates for sums/products <p>Learning opportunities: 2.2, 2.7, 2.8, 7.7</p>	Estimate and compute addition and subtraction problems involving regrouping (1c)

	<p>M3:8: Applies properties of numbers (odd, even) and applies the commutative and associative properties of <u>addition to solve problems and to simplify computations.</u></p>	<p><i>Focus:</i></p> <ul style="list-style-type: none"> • Uses basic facts to solve fact extensions • Applies property of number • Solve extended multiplication facts to tens *ten • Solve extended multiplication facts to hundreds * hundreds • Find factors of a number <p><i>Learning Opportunities:</i> 2.2, 7.6, 7.8, 9.1, 9.6</p>	
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Grade Level 3, Power Standard 2

CCSU Power Standard #2: Students know and apply the attributes of geometric figures. (Aligns with Vermont Standard 7.7)

Concepts to Emphasize: Area, Perimeter, Array

Aligns with Vermont Standards	Vermont Grade Cluster Expectations <i>Competency Focus</i>	Focus and Learning Opportunities	CCSU Power Indicators <i>Proficiency Focus</i>
7.7	<p>M3:9: <u>Uses properties or attributes of angles</u> (number of angles) <u>or sides</u> (number of sides or length of sides) or composition or decomposition of shapes to identify, describe, or distinguish among triangles, squares, rectangles, rhombi, trapezoids, hexagons, or circles.</p> <p style="text-align: right;">M(G&M)–3–1</p>	<p>Focus:</p> <ul style="list-style-type: none"> • Identify/draw/name line segments, lines and rays • Identify right angle • Draw parallel /intersecting line segments, lines and rays • Draw angles as record of rotation <p>Learning Opportunities: 6.1, 6.2, 6.3, 6.7, 6.8</p>	Use properties of geometric figures to distinguish among Them (2c)
	No M3:10 at this grade level (theorems)		
	<p>M3:11: <u>Uses properties or attributes</u> (shape of bases or number of lateral faces) to identify, compare, or describe three-dimensional shapes (rectangular prisms, triangular prisms, cylinders, or spheres).</p>	<p>Focus:</p> <ul style="list-style-type: none"> • Identify/name 2-D and 3-D shapes <p>Learning Opportunities: 6.4, 6.5, 6.6, 6.11, 6.12</p>	

	M3:12: Demonstrates conceptual understanding of congruency using transformations (flips and slides and turns), and shape and size of polygons.	<p>Focus:</p> <ul style="list-style-type: none"> • Identify symmetric figures and draw lines of symmetry • Transformations (flips, slide and turns) • Coordinate graphs <p>Learning Opportunities: 6.9</p>	
	No M3:13 at this grade level (similarity)		
	M3:14: Demonstrates conceptual understanding of perimeter of polygons, and the area of rectangles on grids using a variety of models or manipulatives. <u>Expresses all measures using appropriate units.</u> M(G&M)–3–6	<p>Focus:</p> <ul style="list-style-type: none"> • Find perimeter of polygon • Find area of a rectangle divided into square units • Find volume of rectangular prisms <p>Learning Opportunities: 3.4, 3.5, 3.6, 3.7, 10.1, 10.2, 10.3</p>	<p>Determine area of a rectangle on a grid (2a)</p> <p>Determine perimeter of a polygon (2b)</p>
	No M3:17 at this grade level (sketches 3D)		
	M3:18: Solves problems using the Cartesian coordinate system (Quadrant I) <u>to locate coordinates and to represent data from tables.</u>		

Grade Level 3, Power Standard 3

CCSU Power Standard #3: Students know and use units of measure (See Appendix B). (Aligns with Vermont Standard 7.7)

Concepts to Emphasize: Unit conversions

Aligns with Vermont Standards	Vermont Grade Cluster Expectations <i>Competency Focus</i>	Focus and Learning Opportunities	CCSU Power Indicators <i>Proficiency Focus</i>
7.7	<p>M3:15: Uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands. Benchmarks in Appendix B.</p> <p style="text-align: right;">M(G&M)–3–7</p>	<p>Focus:</p> <ul style="list-style-type: none"> • Tell/show time to the nearest minute • Time equivalencies • Measure line segments to the nearest centimeter/ $\frac{1}{4}$ inch • Measure temperature to the degree • Measurement equivalencies • Know units of measure <p>Learning Opportunities: 1.4, 3.2, 3.3, 10.1, 10.4, 10.5, 10.6</p>	<p>Convert linear measurements within the US system (3a)</p> <p>Measure length to the quarter-inch (3c)</p>
	<p>M3:16: Determines elapsed and accrued time to the $\frac{1}{4}$ hour.</p>	<p>Focus:</p> <ul style="list-style-type: none"> • Determines elapsed time 	<p>Convert passages of time (hours-days, days-weeks, days-years) (3b)</p>

Grade Level 3, Power Standard 4

CCSU Power Standard #4: Students identify and extend patterns to express relationships between and among variables, and solve equations and inequalities. (Aligns with Vermont Standard 7.8)

Concepts to Emphasize: Equivalent, Equation, Constant Rate of change (In/Out boxes)

Aligns with Vermont Standards	Vermont Grade Cluster Expectations <i>Competency Focus</i>	Focus and Learning Opportunities	CCSU Power Indicators <i>Proficiency Focus</i>
	<p>M3:19: Identifies and extends to specific cases a variety of patterns (linear and non-numeric) represented in models, tables, or sequences by extending the pattern to the next one, <u>two</u>, or <u>three elements</u>, or finding missing <u>elements</u>.</p> <p style="text-align: right;">M(F&A)–3–1</p>	<p>Focus:</p> <ul style="list-style-type: none"> • Count by 10s/100s • Identify and use number pattern to solve problems • Completes “What’s My Rule?” tables <p>Learning Opportunities: 1.2, 1.11, 2.3</p>	<p>Find missing elements in an open number sentence (4a)</p> <p>Determine the rule for a constant rate of change (in/out boxes) (4b)</p>
	<p>M3:20: Demonstrates a conceptual understanding of linear relationships ($y = kx$) as a constant rate of change <u>by identifying, describing, or comparing situations that represent constant rates of change.</u></p>	<p>Focus:</p> <ul style="list-style-type: none"> • Linear Patterns: Constant rate of change 	<p>Determine the rule for a constant rate of change (in/out boxes) (4b)</p>
	<p>No M3:21 at this grade level (algebraic expressions)</p>		

	<p>M3:22: Demonstrates conceptual understanding of equality by showing equivalence between two expressions <u>using models or different representations of the expressions</u>; or by finding the value that will make an open sentence true (e.g., $2 + \square = 7$). (limited to one operation and limited to use addition, subtraction, or <u>multiplication</u>)</p> <p style="text-align: right;">M(F&A)–3–4</p>	<p>Focus</p> <ul style="list-style-type: none"> • Conceptual understanding of equality <p>Learning Opportunities:</p>	
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Grade Level 3, Power Standard 5

CCSU Power Standard #5: Students represent, interpret, and predict using data. (Aligns with Vermont Standard 7.9)

Concepts to Emphasize: Data, Graphs, Charts, Tables

Aligns with Vermont Standards	Vermont Grade Cluster Expectations <i>Competency Focus</i>	Focus and Learning Opportunities	CCSU Power Indicators <i>Proficiency Focus</i>
7.9	<p>M3:23: Interprets a given representation (line plots, tally charts, tables, or <u>bar graphs</u>) to answer questions related to the data, to analyze the data to formulate conclusions, or to <u>make predictions</u>.</p> <p>(IMPORTANT: Analyzes data consistent with concepts and skills in M(DSP)–3–2.)</p> <p style="text-align: right;">M(DSP)–3–1</p>	<p>Focus</p> <ul style="list-style-type: none"> • Interprets a representation 	<p>Generate questions about a data set (5a)</p> <p>Create and interpret appropriate representations for a data set (bar graphs, line plots, tally charts, tables) (5c)</p>
	<p>M3:24: Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using <u>most frequent (mode)</u>, <u>least frequent</u>, <u>largest</u>, or <u>smallest</u>.</p> <p style="text-align: right;">M(DSP)–3–2</p>	<p>Focus:</p> <ul style="list-style-type: none"> • Find mean of a data set • Find max, min, mode of a data set • Find median of data set <p>Learning Opportunities: 10.7, 10.8</p>	<p>Identify the mode of a data set (5b)</p>

	<p>M3:25: <u>Identifies or describes representations or elements of representations that best display a given set of data or situation, consistent with the representations required in M3:23</u> M(DSP)–3–3</p> <p>Organizes and displays data using <u>bar graphs</u>, or tables to answer question related to the data, to analyze the data to formulate or <u>justify</u> conclusions, <u>or to make predictions</u>. <i>(IMPORTANT: Analyzes data consistent with concepts and skills in M3: 24.)</i></p>	<p>Focus:</p> <ul style="list-style-type: none"> • Make a bar graph • Make a frequency table <p>Learning Opportunities: 10.7, 10.10</p>	<p>Create and interpret appropriate representations for a data set (bar graphs, line plots, tally charts, tables) (5c)</p>
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Grade Level 3, Power Standard 6

CCSU Power Standard #6: Students find probability theoretically and experimentally. (Vermont Standard 7.9)

Concepts to Emphasize: Prediction

Aligns with Vermont Standards	Vermont Grade Cluster Expectations <i>Competency Focus</i>	Focus and Learning Opportunities	CCSU Power Indicators <i>Proficiency Focus</i>
7.9	<p>M3:26: Uses counting techniques to solve problems in context to <u>determine possibilities</u> using a variety of strategies (e.g., student diagrams, organized lists, tables, tree diagrams, or others); (e.g., How many ways can you make 50 cents using nickels, dimes, and quarters? <u>Given a map – How many different ways can you go from point A to B?)</u></p>	<p>Focus</p> <ul style="list-style-type: none"> • Use counting technique 	Identify the probability of an event as more likely or less Likely (6a)
	<p>M3:27: For a probability event in which the sample space may or may not contain equally likely outcomes, <u>determines the likelihood of the occurrence</u> of an event (using “more likely,” “less likely,” or “equally likely.”) M(DSP)–3–5</p>	<p>Focus</p> <ul style="list-style-type: none"> • Uses fraction to record probability of events <p>Learning Opportunities 11.4, 11.5</p>	

	<p>• M3:28: In response to a teacher or student generated question or hypothesis, collects appropriate data, organizes the data, displays/represents the data and makes observations about the data to draw conclusions about the question or hypothesis being tested.</p> <p><i>(IMPORTANT: Analyzes data consistent with concepts and skills in M3: 24.)</i></p>	<p>Focus</p> <ul style="list-style-type: none"> • Collects/organizes data for use in predicting outcomes <p>Learning Opportunities 11.7</p>	
	<p>M3:29: Uses experimental probability to describe the likelihood or chance of an event using more likely, less likely, equally likely, certain or impossible.</p>	<p>Focus</p> <ul style="list-style-type: none"> • Uses random draws to predict probability • Understands area model of probability and solves simple spinner problems <p>Learning Opportunities 11.1, 11.4, 11.5, 11.7</p>	

Grade Level 3, Power Standard 7

CCSU Power Standard #7: Students use a variety of approaches to solve problems and communicate solutions. (Aligns with Vermont Standard 7.9)

Concepts to Emphasize: Reasonableness

Aligns with Vermont Standards	Vermont Grade Cluster Expectations <i>Competency Focus</i>	Focus and Learning Opportunities	CCSU Power Indicators <i>Proficiency Focus</i>
	<p>M3:30: Demonstrate understanding of mathematical problem solving and communication through:</p> <ul style="list-style-type: none"> • Approach & Reasoning -- The reasoning, strategies, and skills used to solve the problem; • Connections -- Demonstration of observations, applications, extensions, and generalizations; • Solution -- All of the work that was done to solve the problem, including the answer; • Mathematical Language -- The use of mathematical language in communicating the solution; • Mathematical Representation -- The use of mathematical representation to communicate the solution; and • Documentation -- Presentation of the solution. 	<p>Learning Opportunities: Everyday Mathematics Open Responses (unit assessments)</p>	<p>Approach a problem correctly (7a)</p> <p>Provide a solution with evidence (7b)</p> <p>Communicate mathematically (7c)</p>