

Math Curriculum Guide
Grade 7 Mathematics – Uses Connected Mathematics Project (CMP)

State Standards /St. Louis Park Outcomes and State Benchmarks	Common Assessments and CMP Unit Objectives
I. MATHEMATICAL REASONING Standard: The student will apply skills of mathematical representation, communication and reasoning throughout the remaining four content strands	
1. Students will assess the reasonableness of a solution by comparing the solution to appropriate graphical or numerical estimates or be recognizing the feasibility of a solution in a given context.	
2. Students will appropriately use examples and counterexamples to make and test conjectures, justify solutions explain results.	
3. Students will translate a problem described verbally or by tables, diagrams or graphs, into suitable math language, solve the problem mathematically and interpret the result in the original context	
4. Students will support math results by explaining why the steps in a solution are valid and why a particular solution method is appropriate	
5. Students will determine whether or not relevant info is missing from a problem	
6. Students will use accurately common logical words and phrases such as “and”, “or”, “if . . . then”, “unique”, “only if”.	
II. NUMBER SENSE, COMPUTATION AND OPERATIONS Number Sense Standard: The student will use positive and negative rational numbers, represented in a variety of ways, to quantify information and to solve real-world and math problems.	B P (BP) Test A N (AN) Test (8th Grade – Data Around Us)
	Additional Objectives: AN: 5. Solve problems with integers BP2: 3. Can convert between different forms of fractions (equivalent fractions, improper fractions to mixed numbers) BP2: 4. Can solve problems with decimals BP2: 5. Can solve problems with percents BP2: 6. Can solve problems with fractions
1. Students will represent rational numbers as fractions, mixed numbers, decimals or percents and convert among various forms as appropriate.	BP2: 7 Can convert between fractions, decimals, and percents
2. Students will use scientific notation with positive powers of 10, with appropriate treatment of significant digits, to solve real-world and math problems.	8th grade (DAU)
3. Students will locate and compare positive and negative rational numbers on a number line.	AN: 1. Can order positive and negative rational numbers

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<p>B. Computation and Operation Standard: The students will compute fluently and make reasonable estimates with positive and negative rational numbers in real-world and mathematical problems. Understand the meanings of arithmetic operations and factorization, and how they relate to one another. Appropriately use calculators and other technologies to solve problems.</p>	<p>B P A N 8th (Prime factorization-DAU)</p>
<p>1. Students will add, subtract, multiply and divide fractions and mixed numbers.</p>	<p>BP2: 1a Can add and subtract fractions and mixed numbers 1b Can multiply and divide fractions and mixed numbers</p>
<p>2. Students will use the inverse relationship between extracting square roots and squaring positive integers to solve real-world and math problems.</p>	<p>8th grade</p>
<p>3. Students will calculate the percentage of increase and decrease of a quantity in real-world and math problems.</p>	<p>BP2: 5. Can solve problems with percents</p>
<p>4. Students will convert among fractions, decimals and percents and use these representations for estimations and computations in real-world and math problems.</p>	<p>BP2: 7 Can convert between fractions, decimals, and percents</p>
<p>5. Students will understand and compute positive integer powers of nonnegative integers and express examples as repeated multiplication such as $3^4=3 \times 3 \times 3 \times 3=81$.</p>	<p>AN: A8 Can simplify algebraic expressions involving integer exponents 8TH – DUA</p>
<p>6. Students will apply the correct order of operations and grouping symbols when using calculators and other technologies.</p>	<p>AN: 6 Can apply correct order of operations and correctly insert grouping symbols</p>
<p>7. Students will know, use and translate calculator notational conventions to math notation.</p>	
<p>8. Students will understand that use of a calculator requires appropriate math reasoning and does not replace the need for mental computation.</p>	
<p>III. PATTERNS, FUNCTIONS & ALGEBRA A. Patterns and Functions Standard: The student will demonstrate understanding of rate of change graphically and numerically.</p>	
<p>1. Students will demo, numerically and graphically, an understanding that rate is a measure of change of one quantity per unit change of another quantity in real-world and math problems.</p>	<p>VP6. Can identify slope from a table, graph or equation CS: 3. Can find unit rates and use to solve problems</p>
<p>2. Students will plot points on the graph of a linear function and identify the slope or rate of change.</p>	<p>VP1. Can identify variables and label as independent or dependent VP2. Can set up a coordinate graph with correct scale and labels</p>

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	VP5. Can determine when and how to connect points on a coordinate graph VP6. Can identify slope from a table, graph or equation
B. Algebra (Algebraic Thinking) Standard: The student will apply arithmetic operations in the correct order to generate equivalent algebraic expressions and to solve simple formulas in real-world and mathematical problems.	
	Additional Objectives: VP4. Can identify variables and write a symbolic rule for a linear situation BP2:A8. Can simplify algebraic fractions involving addition and multiplication
1. Students will apply the correct order of operations including addition, subtraction, multiplication, division and grouping symbols to generate equivalent algebraic expressions.	8th grade
2. Students will use the facts that the sum of a number and its opposite is zero and the product of a number and its reciprocal is one to generate equivalent algebraic expressions.	AN: 7 Can solve simple formulas of up to three variables when the values of two of the variables are given
3. Students will solve simple formulas with up to three variables, when the values of two of the variables are given.	AN: 7 Can solve simple formulas of up to three variables when the values of two of the variables are given
IV. DATA ANALYSIS A. Data and Statistics Standard: The student will represent data and use various measures associated with data to draw conclusions and identify trends.	
	Additional Objectives: VPA7. Can identify strong/weak, and positive/negative correlation in data
1. Students will construct and analyze simple scatter plots.	AN: 4. Can plot integer points on a coordinate graph Science class
2. Students will understand the meaning of, and be able to compute minimum, maximum, range, median, mean and mode of a data set.	SP is currently listed in 8th SP:3 Can calculate mean, median, mode, and range for a set of data SP:4 Can calculate the five-number summary for a set of data and use it to construct a box-and-whisker plot
B. Probability	

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Standard: The student will calculate and express probabilities numerically, and apply probability concepts to solve real-world and math problems.	
1. Students will express probabilities as percentages, fractions, proportions and decimals.	6th grade
2. Students will use a variety of experiments to explore the relationship between experimental and theoretical probabilities.	8th grade
V. SPATIAL SENSE, GEOMETRY AND MEASUREMENT A. Spatial Sense Standard: The student will recognize the relationship between different representations of two- and three- dimensional shapes. Understand the effect of various transformations.	
1. Students will recognize a view of a three-dimensional shape, given a view from a different orientation.	
2. Students will use visual representations of transformations such as reflections, rotations, translations and change of scale in one and two dimensions to solve real-world and math problems.	SS: 2. Can describe and create rules for translations, enlargements, contractions and reflections of plane figures SS: 3 Can describe rotations of plane figures SS: 4 Can identify similar figures and find scale factors
B. Geometry Standard: The student will use basic geometric principles and proportional reasoning to solve real-world and math problems.	
	Additional Objectives: SS: 1 Can identify corresponding parts of similar figures SS: 5 Can use proportionality of similar figures to solve problems SS: A7 Can use trig ratios to solve problems involving right triangles
1. Students will calculate the radius, diameter, circumference and area of a circle given any one of these.	6th and 8th
2. Students will calculate the area and perimeter of a sector of a circle given its angle and radius.	
3. Students will use ratios and proportions to interpret map scales and scale drawings.	SS: 5 Can use proportionality of similar figures to solve problems CS: 4. Can use ratios to solve problems
4. Students will classify quadrilaterals as squares, rectangles, rhombi, parallelograms, kites, trapezoids or none of these.	6th grade

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C. Measurement Standard: The student will make calculations of time, length, area and volume within standard measuring systems using good judgment in choice of units.	8th(DAU)
1. Students will choose appropriate units to calculate, measure, and record length, weight, area and volume in both U.S. customary and metric systems.	