

FEDERAL WAY SCHOOL DISTRICT
Mathematics Expectations: 7th Grade

| CONTENT | PROCESS |
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| <p><u>1. The student understands and applies the concepts and procedures of mathematics.</u></p> <p>1.1 Number Sense</p> <p>1.1.1 adds, subtracts, multiplies, and divides non-negative whole numbers, decimals, fractions, and mixed numbers using order of operations</p> <p>1.1.2 shows understanding of non-negative fractions, decimals, percents, and place value using models (such as fraction circles, base-10 blocks, etc.)</p> <p>1.1.3 uses symbols to demonstrate properties of the rational number system (properties of addition: commutative, associative, zero; properties of multiplication: commutative, associative, identity, zero; distributive property of multiplication and addition)</p> <p>1.1.4 converts and identifies fraction, decimal, ratio, and percent equivalencies</p> <p>1.1.5 compares and numerically orders whole numbers, fractions, and decimals</p> <p>1.1.6 represents prime and composite numbers, factors and multiples, and divisibility of numbers</p> <p>1.1.7 expresses numbers in factored form including all factor pairs</p> <p>1.1.8 explains the use of mental arithmetic, paper and pencil, calculator or computer as appropriate for a given situation involving non-negative rational numbers</p> <p>1.1.9 identifies situations involving non-negative rational numbers in which estimation is sufficient and computation is not required</p> <p>1.1.10 determines and justifies the reasonableness of answers by estimating results prior to actual computation with non-negative rational numbers (using rounding, compatible numbers, etc.)</p> <p>1.2 Measurement</p> <p>1.2.1 measures using formulas for perimeter, area, and volume</p> <p>1.2.2 selects and uses tools with calibrations that provide appropriate degree of precision</p> <p>1.2.3 understands relationship among perimeter, area, and volume</p> <p>1.2.4 solves problems using rates and determines the appropriate units</p> <p>1.2.5 describes and justifies methods used to obtain approximations when given no exact measures</p> <p>1.2.6 makes conversions within U.S. Customary and Metric systems</p> <p>1.3 Geometric Sense</p> <p>1.3.1 identifies shapes by number of sides and describes shapes using geometric language (such as type of angle, parallel sides, perpendicular, etc.)</p> <p>1.3.2 identifies and plots x-coordinate, y-coordinate, slope, x-intercept, and y-intercept</p> <p>1.3.3 constructs and describes symmetric, congruent, and similar geometric figures</p> <p>1.3.4 describes and constructs simple transformations using combinations of translations, reflections, and rotations</p> <p>1.4 Probability and Statistics</p> <p>1.4.1 calculates the probability that an event will occur in experimental and theoretical situations</p> <p>1.4.2 compares experimental and theoretical results</p> <p>1.4.3 implements an investigation in which a random sample of data representing a described population is collected</p> <p>1.4.4 collects, organizes, and displays data using appropriate form</p> <p>1.4.5 calculates and demonstrates the appropriate use of mean, median, mode, and range</p> <p>1.4.6 predicts outcomes of experiments and simulations, and compares the predictions to experimental results</p> <p>1.4.7 makes and justifies inferences based on experimental results</p> <p>1.5 Algebraic Sense</p> <p>1.5.1 recognizes, extends, creates, and represents numbers using tables, graphs, and function rules</p> <p>1.5.2 translates a given problem situation into a simple mathematical equation and finds the solution</p> <p>1.5.3 evaluates simple expressions and formulas</p> <p>1.5.4 solves simple equations and inequalities containing one variable</p> <p>1.5.5 represents equalities and inequalities using =, <, and ></p> | <p><u>2. The student uses mathematics to define and solve problems.</u></p> <p>2.1 searches systematically for patterns in simple situations</p> <p>2.2 develops and uses a variety of strategies and approaches (such as guess/check/revise, work backwards, etc.)</p> <p>2.2a identifies missing or extraneous information</p> <p>2.2b uses formulas, strategies, algebraic properties, and order of operations to solve problems</p> <p>2.2c shows all steps when solving a problem</p> <p>2.2d recognizes the need to modify or abandon an unproductive approach</p> <p><u>3. The student uses mathematical reasoning.</u></p> <p>3.1 makes, tests, and justifies conjectures and inferences</p> <p>3.2 validates thinking and mathematical ideas using patterns and relationships</p> <p>3.3 checks results for reasonableness and accuracy</p> <p><u>4. The student communicates knowledge and understanding in both everyday and mathematical language.</u></p> <p>4.1 organizes and clarifies mathematical information by reflecting, verbalizing, discussing, or writing</p> <p>4.2 uses reading, listening, and observation skills to access and extract mathematical information</p> <p>4.3 clearly and effectively expresses or presents ideas and situations using both everyday and mathematical language (such as models, tables, charts, written reflections, or algebraic notation)</p> <p><u>5. The student understands how mathematical ideas connect within mathematics, to other subject areas, and to real-life situations.</u></p> <p>5.1 connects conceptual and procedural understandings among different mathematical content areas</p> <p>5.2 identifies mathematical patterns and relationships in other disciplines</p> <p>5.3 uses mathematical thinking and modeling in other disciplines</p> <p>5.4 explains the extensive use of mathematics in everyday situations, and occupational/career areas</p> <p>5.5 uses available technology to browse, select, and retrieve mathematical information</p> |