

Marsh Valley School District
Quick Referenced Curriculum Guide-6th Math
June 2004

Skills are identified with Introduced (I), Practiced (P), Mastered (M), Reinforced (R)

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| <p>Mathematical Reasoning and Problem Solving</p> <p style="text-align: center;">Problem Solving</p> <p>* □ Solve grade level appropriate problems throughout all strands (M)</p> <p>* □ Experiment with manipulatives and real world experiences to identify and solve problems (P) 318.01a</p> <p>* □ Apply the four step problem solving process: explore, plan, solve, and examine (P)</p> <p>* □ Apply a variety of strategies to solve problems: Choose an Operation, Act It Out, Use a Pattern, Make a Model, or Drawing, Guess and Check, Make a Table or Systematic List, Use Logical Reasoning, Work Backwards (P) <i>Emphasis: Work Backwards</i> 318.01b</p> <p style="text-align: center;">Story Problems</p> <p>* □ Model and solve real world and story problems using number sentences to describe the situation (P) 318.01a</p> <p>* □ Estimate and solve story problems related to division and interpret the remainders (M)</p> <p>* □ Estimate and solve story problems related to decimals (P)</p> <p>* □ Estimate and solve story problems related to fractions (P)</p> <p style="text-align: center;">Reasoning</p> <p>* □ Use estimation to predict computation results and to evaluate the reasonableness of an answer (P) 317.03b</p> <p>* □ Decide when to use paper/pencil, mental math, or calculators to solve computation problems (P) 317.02h</p> <p>* □ Determine whether an estimate is an overestimate or an underestimate (P) 317.03c</p> <p>* □ Decide when to use an estimate or an exact answer (P) 317.03b</p> | <p>* □ Identify extra or missing information that is necessary to solve problems (P)</p> <p style="text-align: center;">Mathematics Processes</p> <p style="text-align: center;">Communication</p> <p>* □ Use appropriate grade level vocabulary within all strands (I-M) 317.03d</p> <p>* □ Organize and consolidate mathematical thinking to communicate with others (P)</p> <p>* □ Express mathematical ideas using words, numbers, symbols, tables, charts, graphs, diagrams, and models (P) 318.02a, 04a</p> <p style="text-align: center;">Other Processes</p> <p>* □ Extend mathematical knowledge by considering the thinking strategies of others (P)</p> <p>* □ Make generalizations and justify mathematical conclusions (P)</p> <p style="text-align: center;">Number Sense</p> <p style="text-align: center;">Whole Numbers</p> <p>* □ Explain how numbers are used in real world contexts (P)</p> <p>* □ Identify and use periods in whole numbers to name numbers (M)</p> <p>* □ Read and write whole numbers in words and numerals (M) 317.01a</p> <p>* □ Round whole numbers (M)</p> <p>* □ Understand number line 317.01a</p> <p style="text-align: center;">Place Value</p> <p>* □ Identify place value to the billions period (M)</p> <p>* □ Write numbers in standard and expanded form (M)</p> <p>* □ Write a whole number in scientific notation (I-P) 337.01c</p> <p style="text-align: center;">Number Theory</p> <p>* □ Explore/apply number theory concepts: prime, composite, and divisibility rules for 2, 5, and 10 (M) 317.01e</p> <p>* □ Explore and apply number theory concepts: GCF,</p> | <p>LCM, prime factorizations, other divisibility rules, exponents (I-P) 317.01c, .02f</p> <p style="text-align: center;">Decimals</p> <p>* □ Read and write decimals in numbers and words (M) 317.01a</p> <p>* □ Identify place value in decimal numbers (M)</p> <p>* □ Compare and order decimals (M) 317.01a</p> <p>* □ Round decimal numbers (P)</p> <p style="text-align: center;">Fractions, Ratios, and Proportions</p> <p>* □ Explore the use of proportions, ratios and scales 319.03a</p> <p>* □ Relate common fractions to decimals and percents (I-P)</p> <p>* □ Apply fraction sense to classify fractions as close to 0, 1/2, or 1 (M)</p> <p>* □ Compare/order common fractions and mixed numbers using fraction sense (M) 317.01a</p> <p>* □ Compare and order fractions using least common denominators (I-P) 317.01a</p> <p>* □ Determine equivalent fractions (M)</p> <p>* □ Simplify/reduce fractions using greatest common factor (I-P) 320/02c</p> <p>* □ Convert mixed numbers and improper fractions (P)</p> <p>* □ Round fractions and mixed numbers to the nearest whole number (M)</p> <p style="text-align: center;">Concepts and Language of Algebra, Functions, and Mathematical Models</p> <p>* □ Explore and use the following properties: commutative, associative, distributive, identity, and zero (P) 320.02a</p> <p>* □ Translate simple word statements and story problems into algebraic equations (P) 320.01b</p> <p>* □ Explore the meaning and use of variables in simple expressions and equations (P) 320.01a</p> <p>* □ Solve an equation with an operation on both sides of the equal sign (M) 320.01c</p> <p>* □ Solve simple whole number equations with a variable</p> |
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| * □ (M) 320.01a | * □ Estimate, multiply and divide common fractions and simplify (I-P) 317.02a-c&g | * □ Name and construct regular and irregular polygons (P) 321.01a-b |
| * □ Use symbols of inequality to write and complete number sentences (P) 320.01c | * □ Memorize equivalent fractions, decimals and percents | * □ Explore transformations of two-dimensional figures using the terms: reflections, translations, and rotations (I) 321.01g |
| * □ Estimate and solve decimal equations using one step addition and subtraction (I-P) | * □ <u>Concepts and Principles of Measurements</u> | * □ Identify/construct congruent and similar figures and shapes (I-P) 321.01d-e |
| * □ Apply order of operations to solve whole number equations (I-P) 320.02b | * □ Sequence events relative to time (P) 319.01d&f | * □ Identify multiple lines of symmetry (P) |
| * □ Reproduce, create, describe, and extend geometric and numeric patterns (P) | * □ Solve two-step problems involving time and calendars (P) 319.01d&f | * □ Identify and name attributes of three-dimensional solids: edges, vertices, faces (P) 321.01a |
| * □ Construct a function table (T-chart) to store data from a simple numeric pattern (M) 323.01a | * □ Determine elapsed time in calendar time and analog time (M) 319.01d&f | * □ Investigate right triangle geometry using Pythagorean Theorem 321.02a |
| * □ Solve one step equations using inverse operations with whole numbers 320.03a | * □ Estimate, add/subtract units of time (M) 319.01d&f | * □ Identify, name, and draw intersecting, parallel, and perpendicular lines (P) 321.01c |
| * □ Discover, describe and extend patterns by using manipulative and pictorial representation 323.01b | * □ Solve two-step problems related to money (P) | * □ Identify and name points, lines, rays, and angles (P) 321.01c |
| * □ Determine a rule for a simple pattern (M) 323.01a | * □ Explore concepts of length, temperature, weight, and volume using standard/non-standard units and tools (P) 319.01d&f | * □ Use a protractor to measure, construct, and classify angles (I-P) 321.01b |
| * □ Generate a rule from a pattern to solve a problem or make a prediction 323.01a | * □ Apply estimation of measurement to real world and content problems using actual measuring devices (P) 319.04a | * □ Determine the radius and diameter of a circle (P) 321.01e |
| * □ <u>Estimation and Accurate Computation</u> | * □ Identify best unit of measure in customary and metric systems (P) 319.01a | * □ Determine the circumference and area of a circle (I) 321.01e |
| * □ Memorize multiplication and division facts through 12's (R) | * □ Memorize and apply simple equivalent measures of length, weight, and liquid volume in the metric system (I-P) | * □ Set up a coordinate grid and use it to mark and read position using ordered pairs (P) 321.02a |
| * □ Use mental math to divide whole numbers which are multiples of 10, 100, or 1,000 by multiples of 10, 100, or 1,000 (M) | * □ Perform simple conversions within the customary and metric systems (P) 319.01e | * □ <u>Data Analysis, Probability, and Statistics</u> |
| * □ Estimate, predict, and solve division problems with simple two-digit divisors and quotients (M) 317.02a-c&g | * □ Determine appropriate tools to measure length, mass, liquid volume, weight, and temperature (P) 319.01a | * □ Use vocabulary such as more and less likely/unlikely, possible/impossible (P) 322.04b |
| * □ Express a remainder as a whole number, decimal, and fraction (I-P) | * □ Use a thermometer to determine temperature in Fahrenheit and Celsius (P) 319.01a | * □ Explore probability through experimentation and events (P) 322.04a |
| * □ Interpret remainders using a calculator (M) | * □ Use a scale to measure weight/mass in ounces/pounds or grams/kilograms (P) 319.01d&f | * □ Record results of experiments and events using tables and graphs (P) 322.02a |
| * □ Estimate, add and subtract decimals (M) | * □ Use appropriate tools to measure liquid volume: cup, pint, quart, gallon, milliliter, liter (P) 319.01a | * □ Make predictions, summarize outcomes, and draw conclusions from experiments and events (P) 322.04a |
| * □ Estimate, predict and multiply a decimal by a whole number (M) | * □ Use a ruler to measure to the nearest 1/16 inch (M) | * □ Express simple probability as a fraction (P) 322.04a |
| * □ Estimate, predict, and divide a decimal by a decimal (I-P) 317.02a-c&g | * □ Use a ruler to measure to the nearest millimeter (M) | * □ Analyze, predict, summarize, and draw conclusions from data in: charts, data files, tables, schedules, and story problems (P) 318.02a, 322.01a-b |
| * □ Estimate, predict, multiply and divide a decimal by a decimal (I-P) 317.02a-c&g | * □ Determine the area of a triangle (I-P) 321.01e | * □ Interpret graphs (P) 322.01a-b |
| * □ Multiply and divide a decimal by 10, 100, 1,000 (I-P) | * □ Draw conclusions about the relationship between perimeter and area (P) 310.01d&f | * □ Collect and record data in a variety of graphic forms (P) 322.02a |
| * □ Estimate, add, subtract and simplify fractions (P) 317.02a-c&g | * □ Add and subtract units of length, weight, and capacity (P) 319.01d&f | * □ Construct graphs to record data (M) 322.02a |
| * □ Estimate, add, subtract and simplify fractions (P) 317.02a-c&g | * □ Understand concept of surface area and volume 321.01f | * □ Represent data in a circle graph with simple fractional relationships (M) 322.02a |
| * □ Estimate, add, subtract mixed numbers with renaming and simplifying (I-P) 317.021-c&g | * □ <u>Concepts and Principle of Geometry</u> | * □ Create graphs, charts, and diagrams from data in story |
| | * □ Classify triangles according to their properties and/or attributes (I-P) | |

problems (P) 322.02a, 318.02a

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Determine the mean, median, mode, and range of a set of data that may include decimals or fractions (P)
322.03a-b