

Marsh Valley School District Quick Reference Curriculum Guide--5th Grade Math June 2004

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

Mathematical Reasoning & Problem Solving

Problem Solving

- ❑ Solve grade level appropriate problems throughout all strands (M) 308.01a
- ❑ Experiment with manipulatives and real world experiences to identify and solve problems (P) 308.01a
- ❑ Apply the four-step problem solving process: explore, plan, solve, examine. (P) 308.01b
- ❑ 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) 308.02a

Story Problems

- ❑ Model and solve real world and story problems using number sentences to describe the situation (P) 308.03
- ❑ Estimate and solve grade level appropriate story problems related to multiplication, including two-step problems (M)
- ❑ Estimate and solve simple story problems related to division and interpret the remainders (P) 308.01a
- ❑ Estimate and solve story problems related to decimals (P)
- ❑ Estimate and solve story problems related to simple addition and subtraction of fractions (I-P) 308.01

Reasoning

- ❑ Use estimation to predict computation results and to evaluate the reasonableness of an answer (P) 308.03
- ❑ Decide when to use paper/pencil, mental math, or calculators to solve computation problems (P) 308.02f
- ❑ Determine whether an estimate is an overestimate or an underestimate (I)
- ❑ Decide when to use an estimate or an exact answer (I) 308.03c
- ❑ Identify extra or missing information that is necessary to solve problems (P) 308.02

Mathematics Processes

Communication

- ❑ Use appropriate grade level vocabulary within all strands (I-M) 308.04b
- ❑ Organize and consolidate mathematical thinking to communicate with others (P)
- ❑ Express mathematical ideas using words, numbers, symbols, tables, graphs, charts, diagrams, and models (P) 308.04a
- ❑ Extend mathematical knowledge by considering the thinking strategies of others (P) 308.02c
- ❑ Make generalizations and justify mathematical conclusions (P) 308.02c

Number Sense

Whole Numbers

- ❑ Explain how numbers are used in real world contexts (P)
- ❑ Identify and use periods in whole numbers to name numbers through the billions period (M) 308.01a
- ❑ Read and write numbers in words and numerals through the billions period (M) 308.01a
- ❑ Round to the hundreds, thousands, and ten thousands in numbers up to 5 digits (M)

Place Value

- ❑ Identify place value to the millions place (M) 308.01b
- ❑ Apply understanding of place value to write numbers in standard and expanded form (M)

Number Theory

- ❑ Explore and apply number theory concepts: odd, even, multiple, factor (M) 308.01f
- ❑ Explore/apply number theory concepts: prime, composite and divisibility rules for 2,5,and 10 (I-P) 308.01f

Decimals

- ❑ Explore/apply the concept of decimals using a variety of manipulatives, models, and real life applications (M) 308.01e
- ❑ Read and write decimals in numbers and words through thousandths (M) 308.01d
- ❑ Identify place value in decimal numbers through thousandths (M) 308.01b

- ❑ Compare and order decimals through thousandths (M) 308.01b
- ❑ Round decimal numbers to the nearest dollar or whole number (M)
- ❑ Relate decimals to common fractions (I-P)

Fractions

- ❑ Explore and apply the concept of common fractions and mixed numbers using models and real life applications (M)
- ❑ Apply fraction sense to classify fractions as close to 0, $\frac{1}{2}$, or 1 (I-P) 308.01d
- ❑ Compare/order fractions (I-P)
- ❑ Determine equivalent common fractions using a variety of models and representations (I-P)
- ❑ Reduce/simplify common fractions (I-P)
- ❑ Convert mixed numbers and improper fractions (I-P) 308.01d

Concepts & Language of Algebra, Functions, and Mathematical Models

- ❑ Explore and use the following properties: commutative, associative, distributive, identity, and zero (P) 310.02a
- ❑ Explore the meaning and use of variables in simple expressions and equations (I) 310.01a
- ❑ Translate simple word statements and story problems into algebraic equations (I) 310.01b
- ❑ Solve an equation with an operation on both sides of the equal sign (P) 310.01c
- ❑ Solve simple whole number equations with a variable (I-P) 310.02b
- ❑ Use symbols of inequality to write and complete number sentences (P)
- ❑ Apply the 'parenthesis rule' for order of operations (I-P) 310.02b
- ❑ Solve missing factor problems using reversal of operations (P-M) 310.03a
- ❑ Reproduce, create, describe and extend geometric numeric patterns (P) 313.01
- ❑ Construct a function table (T-chart) to store data from a simple numeric pattern (P) 313.02
- ❑ Determine a rule from a simple pattern (P) 313.02

- ❑ Apply a rule from a pattern to solve a problem or make a prediction (P) 313.02

Estimation and Accurate Computation Multiplication and Division 307.02

- ❑ Understand the relationship between multiplication and division (M)
- ❑ Use mental math to multiply multiples of 10, 100, or 1,000 by multiples of 10, 100, and 1,000 (M)
- ❑ Estimate & multiply a two-to-three-digit number by a two-digit number (M)
- ❑ Explore/apply the concept of division as the sharing and grouping of objects using a variety of models and real life applications (M)
- ❑ Memorize division facts with quotients up to 12 (M)
- ❑ Estimate and solve division problems with one-digit divisors and up to four-digit dividends (M)
- ❑ Use mental math to divide whole numbers which are multiples of 10, 100, or 1,000 by multiples of 10, 100, and 1,000 (I-P)
- ❑ Estimate and solve division problem with simple two-digit divisors and quotients (I-P)
- ❑ Interpret remainders (I-P)

Decimals 307.01

- ❑ Estimate, add and subtract decimals to the thousandths place (I-P)
- ❑ Estimate and multiply a decimal by a whole number (I-P)
- ❑ Multiply a decimal by 10, 100, or 1,000 (I-P)

Fractions

- ❑ Add/subtract/multiply/divide fractions and simplify (I-P) 307.01c

Concepts and Principles of Measurement

- ❑ Sequence events relative to time (P) 309.01f
- ❑ Solve grade level appropriate problems involving time and calendars (P) 309.01f
- ❑ Solve problems related to equivalent measures of time (P)
- ❑ Determine elapsed time in calendar, time and analog time (I-P)
- ❑ Add/subtract units of time (I-P)

- ❑ Solve story problems related to money including two-step problems (P)
- ❑ Explore concepts of length, temperature, weight, and volume using standard/nonstandard units and tools (P) 309.101a
- ❑ Estimate to predict reasonable measurements (P) 309.01b
- ❑ Solve story problems related to measurement (P)
- ❑ Identify best unit of measure in customary and metric systems (P) 301.01e
- ❑ Memorize simple relationships between customary units of length, weight, and liquid volume (M) 309.01c
- ❑ Perform conversions within the customary and metric systems (P)
- ❑ Determine appropriate tools to measure length, mass, capacity, weight, and temperature (P) 309.01a
- ❑ Use a thermometer to determine temperature in Fahrenheit and Celsius (P) 309.01a
- ❑ Use a scale to measure weight/mass in ounces/pounds or grams/kilograms (P) 309.01a
- ❑ Use appropriate tools to measure capacity: cup, pint, quart, gallon, milliliter, liter (P) 309.01a
- ❑ Use a ruler to measure to the nearest eighth of an inch (P)
- ❑ Use a ruler to measure to the nearest millimeter (P)
- ❑ Determine the area of a rectangle (M)
- ❑ Explore the differences and relationships between perimeter and area in both systems (I) 309.01c

Concepts and Principles of Geometry

- ❑ Classify quadrilaterals according to their properties or attributes (P) 311.01a
- ❑ Name and draw regular and irregular polygons (I-P) 311.01d
- ❑ Predict/describe the results of slides, flips, and turns of two-dimensional figures (P)
- ❑ Identify congruent and similar figures and shapes (P) 311.01e

- ❑ Identify multiple lines of symmetry (P)
- ❑ Name common three-dimensional solids (M) 311.01c
- ❑ Identify and name attributes of three dimensional solids: edge, vertices, face (P) 311.01a
- ❑ Identify, name and draw intersecting, parallel, and perpendicular lines (P) 311.01f
- ❑ Identify and name points, lines, rays, and angles (I-P) 311.01b
- ❑ Classify angles as right, obtuse, and acute (M) 311.01b
- ❑ Determine the radius and diameter of a circle (I-P) 311.01b
- ❑ Set up a coordinate grid and use it to mark and read position using ordered pairs (I-P) 311.02a

Data Analysis, Probability and Statistics

- ❑ Use vocabulary such as more and less, likely/unlikely, possible/impossible (P)
- ❑ Explore probability through experimentation and events (P) 312.01
- ❑ Record results of experiments and events using tables and graphs (P) 312.04
- ❑ Make predictions, summarize outcomes, and draw conclusions from experiments and events (P)
- ❑ Express simple probability as a fraction (I-P)
- ❑ Analyze, predict, summarize and draw conclusions from data in charts, data files, tables, schedules, and story problems (P)
- ❑ Interpret simple circle graphs (M) 312.04
- ❑ Collect and record data in a variety of graphic forms (P) 312.02
- ❑ Construct a line, bar, pictograph and table to record data (P)
- ❑ Represent data in a circle graph using simple fractional relationships (I-P) 312.02
- ❑ Represent data from story problems in graphs, charts, and diagrams (P)
- ❑ Determine the mean, median, and mode, and range of a simple set of real world data (I-P) 312.03a

