

**THE FOLLOWING STATE CURRICULUM STANDARDS ARE ADDRESSED BY
THE QUARTER MILE MATH SOFTWARE
FOR THE STATE OF VERMONT**

Grades PK - 4

Subject: MATH

Standard: Mathematical Problem Solving

Strand: Applications

Substrand	Titles that Address the Substrand
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(Gr. PreK-4) a. Solve problems by reasoning mathematically with concepts and skills expected in these grades;

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. PreK-4) c. Create and use a variety of strategies and approaches to solve problems, and learn approaches that other people use;

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. PreK-4) d. Make connections between concepts in order to solve problems;

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. PreK-4) e. Extend concepts and generalize results to other situations; and

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. PreK-4) f. Make sensible, reasonable estimates.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematical Understanding

Strand: Arithmetic, Number, And Operation Concepts

Substrand	Titles that Address the Substrand
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(Gr. PreK-4) a. Add, subtract, multiply, and divide whole numbers, with or without calculators;

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. PreK-4) b. Begin to use simple concepts of negative numbers, properties of numbers (e.g., prime, square, composite), three-digit and larger multipliers and divisors, rates, and the relationship among fractions, decimals, and percents;

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. PreK-4) c. Describe and compare quantities by using simple fractions and decimals, and whole numbers up to 1,000,000; and

Quarter Mile Math Level 1
Quarter Mile Math Level 2

(Gr. PreK-4) d. Estimate, approximate, round off, and/or use exact numbers, as appropriate and necessary in calculation;

Quarter Mile Math Level 1
Quarter Mile Math Level 2

(Gr. PreK-4) e. Use knowledge of the place value system to solve problems.

Quarter Mile Math Level 1
Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematical Understanding

Strand: Statistics And Probability Concepts

Substrand **Titles that Address the Substrand**

(Gr. PreK-4) b. Begin to use simple concepts of mean, median, and mode, along with various ways to represent data graphically;

Quarter Mile Math Level 2

Grades 5 - 8

Subject: MATH

Standard: Mathematical Problem Solving

Strand: Applications

Substrand **Titles that Address the Substrand**

(Gr. 5-8) bb. Formulate and solve a variety of meaningful problems;

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) cc. Create and use a variety of approaches, and understand and evaluate the approaches that others use; determine how to break down a complex problem into simpler parts; extract pertinent information from situations;

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) dd. Integrate concepts and techniques from different areas of mathematics;

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) ee. Generalize solutions and strategies to new problem situations; and

Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematical Understanding

Strand: Arithmetic, Number, And Operation Concepts

Substrand **Titles that Address the Substrand**

(Gr. 5-8) aa. Consistently and accurately add, subtract, multiply, and divide rational numbers, and convert them into exponents;

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 5-8) bb. Interchange fractions, decimals, and percents; know that irrational numbers neither terminate nor repeat when written in decimal form;

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) cc. Show a sense of the magnitudes and relative magnitudes of numbers, and the helpful role of scientific notation;

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) f. Realize the inverse relationships between addition and subtraction, multiplication and division, and exponentiation and root-extraction;

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) g. Reason proportionally to solve problems involving equivalent fractions or equal ratios; and

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) h. Interpret percent as part of 100, as means of comparing quantities of different sizes, and as rate of change; order real numbers with the '>' and '<' relationships, and by location on a number line.

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematical Understanding

Strand: Function And Algebra Concepts

Substrand

Titles that Address the Substrand

(Gr. 5-8) aa. Discover, describe, and generalize a variety of patterns mathematically;

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) bb. Understand variables in simple functions, especially linear and exponential functions; represent relationships with tables, graphs, and verbal or symbolic rules; analyze tables, graphs, and rules to determine relationships; and

Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematical Understanding

Strand: Statistics And Probability Concepts

Substrand

Titles that Address the Substrand

(Gr. 5-8) bb. Appropriately use measures of central tendency -- mean, median, and mode; understand the significance of frequency and distribution;

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematical Understanding

Strand: Arithmetic, Number, And Operation Concepts

Substrand	Titles that Address the Substrand
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(Gr. 9-12) aaa. Understand and use number systems: natural, whole, integer, rational, real and complex;

Quarter Mile Math Level 3

(Gr. 9-12) hh. Compare numbers using order relations, differences, ratios, proportions, percents, and proportional change;

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 9-12) i. Understand the interrelationship of the four binary arithmetic operations, and use the properties of these operations in forming and working with algebraic expressions;

Quarter Mile Math Level 3

(Gr. 9-12) j. Recognize and represent basic number patterns; and

Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematical Understanding

Strand: Function And Algebra Concepts

Substrand	Titles that Address the Substrand
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(Gr. 9-12) bbb. Represent functional relationships in formulas, tables, and graphs, and translate among these; model given situations with functions, and interpret given functions in terms of situations; understand functions as relationships in which one quantity determines another; use basic types of functions (linear, exponential, periodic, power, rational, square, and square roots, and cubes and cube roots); work with properties and mechanics of functions (evaluation, inverses, slope, local maxima and minima);

Quarter Mile Math Level 2

(Gr. 9-12) ccc. Define and use variables, parameters, constants, and unknowns in work with both functions and equations; solve equations both symbolically and graphically, especially linear, quadratic, and exponential equations; use equations to represent curves such as lines, circles, ellipses, parabolas, and hyperbolas;

Quarter Mile Math Level 2

(Gr. 9-12) d. Understand the basic algebraic structure of number systems;

Quarter Mile Math Level 3