

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

Grades K - 3

Subject: MATH

Standard: Communication And Connections

Strand: Students Will Communicate Their Understanding Of Mathematics.

Substrand Titles that Address the Substrand

(Gr. K-3) Relate everyday language to mathematical language and symbols.

Quarter Mile Math Level 1

(Gr. K-3) Discuss, illustrate, and write about mathematical concepts and relationships.

Quarter Mile Math Level 1

Subject: MATH

Standard: Communication And Connections

Strand: Students Will Recognize, Develop, And Explore Mathematical Connections.

Substrand Titles that Address the Substrand

(Gr. K-3) Understand the mathematical processes of addition, subtraction, and multiplication and relate them to one another.

Quarter Mile Math Level 1

(Gr. K-3) Recognize relationships among different topics in mathematics.

Quarter Mile Math Level 1

Subject: MATH

Standard: Functions, Relations And Algebra

Strand: Students Will Recognize Patterns And Describe And Represent Relations And Functions With Tables, Graphs, Equations And Rules, And Analyze How A Change In One Element Results In A Change In Another.

Substrand Titles that Address the Substrand

(Gr. K-3) Represent and describe mathematical relationships.

Quarter Mile Math Level 1

Subject: MATH

Standard: Numbers, Numeration, Operations, And Number Theory

Strand: Students Will Compute.

Substrand Titles that Address the Substrand

(Gr. K-3) Model, explain, and develop proficiency with basic facts and algorithms.

Quarter Mile Math Level 1

(Gr. K-3) Use a variety of mental computation and estimation techniques.

Quarter Mile Math Level 1

(Gr. K-3) Given a problem, select appropriate computational techniques to solve the problem and determine the reasonableness of the result.

Quarter Mile Math Level 1

Subject: MATH

Standard: Numbers, Numeration, Operations, And Number Theory

Strand: Students Will Develop Number Sense And An Understanding Of Our Numeration System.

Substrand	Titles that Address the Substrand
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(Gr. K-3) Order a set of numbers (0-99) from smallest to largest.

Quarter Mile Math Level 1

(Gr. K-3) Name the whole number immediately before or after any 2-digit number.

Quarter Mile Math Level 1

(Gr. K-3) Name the number that is ten units before or ten units after any 2-digit number.

Quarter Mile Math Level 1

(Gr. K-3) Compare any two 2-digit numbers to determine which is greater or less.

(Gr. K-3) Read and write whole numbers.

Quarter Mile Math Level 1

(Gr. K-3) Show understanding of place value concepts via the use of physical models.

Quarter Mile Math Level 1

(Gr. K-3) Recognize and demonstrate the difference in magnitude of whole numbers and fractions.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. K-3) Demonstrate knowledge of differences in the use of ordinal and cardinal numbers.

Quarter Mile Math Level 1

Subject: MATH

Standard: Numbers, Numeration, Operations, And Number Theory

Strand: Students Will Understand The Concepts Of Number Operations.

Substrand	Titles that Address the Substrand
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(Gr. K-3) Develop meaning for the operations of addition, subtraction, multiplication, and division by modeling and discussing a rich variety of problem situations.

Quarter Mile Math Level 1

(Gr. K-3) Demonstrate and explain the relationship between these operations.

Quarter Mile Math Level 1

(Gr. K-3) Relate the mathematical language and symbols to problem situations and informal language.

Quarter Mile Math Level 1

(Gr. K-3) Recognize the effect of performing the operations of addition, subtraction, multiplication, and division with whole numbers.

Quarter Mile Math Level 1

Subject: MATH

Standard: Numbers, Numeration, Operations, And Number Theory

Strand: Students Will Use Mental Computation And Estimation Skills And Strategies And Know When It Is Appropriate To Do So.

Substrand Titles that Address the Substrand

(Gr. K-3) Use a variety of estimation strategies when solving problems.

Quarter Mile Math Level 1

(Gr. K-3) Determine the reasonableness of answers for problems involving arithmetic operations.

Quarter Mile Math Level 1

(Gr. K-3) Recognize and use estimation and mental computation to solve problems where exact answers are not required.

Quarter Mile Math Level 1

(Gr. K-3) Estimate or predict an approximate solution to a problem.

Quarter Mile Math Level 1

Subject: MATH

Standard: Problem Solving And Reasoning

Strand: Students Will Use Mathematical Reasoning

Substrand Titles that Address the Substrand

(Gr. K-3) Draw conclusions using inductive reasoning.

Quarter Mile Math Level 1

Subject: MATH

Standard: Problem Solving And Reasoning

Strand: Students Will Use Problem-solving Strategies To Investigate And Understand Increasingly Complex Mathematical Content.

Substrand Titles that Address the Substrand

(Gr. K-3) Generalize solutions and apply strategies to new problem situations.

Quarter Mile Math Level 1

(Gr. K-3) Solve multi-step problems.

Quarter Mile Math Level 1

(Gr. K-3) Demonstrate that a problem may be solved in more than one way.

Quarter Mile Math Level 1

(Gr. K-3) Display increasing perseverance, and persistence in problem solving.

Quarter Mile Math Level 1

Subject: MATH

Standard: Communication And Connections

Strand: Students Will Recognize, Develop, And Explore Mathematical Connections.

Substrand **Titles that Address the Substrand**

(Gr. 4-6) Understand the mathematical processes and procedures of addition, subtraction, multiplication, and division and relate them to one another.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. 4-6) Recognize equivalent representations of concepts and procedures and translate among them as appropriate (for example, understand how the addition of whole numbers, fractions, and decimals are related).

Quarter Mile Math Level 2

(Gr. 4-6) Recognize relationships among different topics in mathematics.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Data Analysis, Statistics, And Probability

Strand: Students Will Use Data Analysis, Statistics And Probability To Analyze Given Situations And The Outcomes Of Experiments.

Substrand **Titles that Address the Substrand**

(Gr. 4-6) Investigate and explore mean, median, and mode.

Quarter Mile Math Level 2

Subject: MATH

Standard: Discrete Mathematics

Strand: Students Will Use A Variety Of Tools From Discrete Mathematics To Explore And Model Real-world Situations.

Substrand **Titles that Address the Substrand**

(Gr. 4-6) Create simple algorithms as a more efficient way of solving problems.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Functions, Relations And Algebra

Strand: Students Will Recognize Patterns And Describe And Represent Relations And Functions With Tables, Graphs, Equations And Rules, And Analyze How A Change In One Element Results In A Change In Another.

Substrand **Titles that Address the Substrand**

(Gr. 4-6) Explore number patterns to discover properties and relationships.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Analyze properties and relationships related to prime numbers, composite numbers, rational numbers, multiples, factors, and exponents.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Explore simple linear equations.

Quarter Mile Math Level 3

Subject: MATH

Standard: Functions, Relations And Algebra

Strand: Students Will Use Algebraic Concepts And Processes To Represent Situations That Involve Variable Quantities With Expressions, Equations, Inequalities, Matrices And Graphs.

Substrand Titles that Address the Substrand

(Gr. 4-6) Understand the use of literal variables, expressions, equations, and inequalities.

Quarter Mile Math Level 3

(Gr. 4-6) Solve simple linear equations using informal, graphical, and concrete methods.

Quarter Mile Math Level 3

Subject: MATH

Standard: Numbers, Numeration, Operations, And Number Theory

Strand: Students Will Compute.

Substrand Titles that Address the Substrand

(Gr. 4-6) Multiply and divide whole numbers and decimals.

Quarter Mile Math Level 2

(Gr. 4-6) Add integers and positive rational numbers using models or representations.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Use a variety of mental computation techniques.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Numbers, Numeration, Operations, And Number Theory

Strand: Students Will Develop Number Sense And An Understanding Of Our Numeration System.

Substrand Titles that Address the Substrand

(Gr. 4-6) Read and write integers and positive rational numbers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Explore the relationship of simple decimals to fractions.

Quarter Mile Math Level 2

(Gr. 4-6) Explore the meaning of 10%, 25%, 50%, 75%, and 100% and their fraction and decimal equivalents.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Identify multiples and factors of whole numbers.

Quarter Mile Math Level 2

(Gr. 4-6) Identify numbers divisible by 2, 3, 5, 9, and 10.

Quarter Mile Math Level 2

(Gr. 4-6) Explore ancient numeration systems and the use of different bases (such as base 2 and 5).

Quarter Mile Math Level 2

Subject: MATH

Standard: Numbers, Numeration, Operations, And Number Theory

Strand: Students Will Use Mental Computation And Estimation Skills And Strategies And Know When It Is Appropriate To Do So.

Substrand **Titles that Address the Substrand**

(Gr. 4-6) Use a variety of mental computation techniques in appropriate situations.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Demonstrate estimation skills through a variety of strategies.

Quarter Mile Math Level 2

(Gr. 4-6) Determine the reasonableness of answers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Recognize and use estimation and mental computation to solve problems where exact answers are not required.

Quarter Mile Math Level 2

Subject: MATH

Standard: Problem Solving And Reasoning

Strand: Students Will Use Problem-solving Strategies To Investigate And Understand Increasingly Complex Mathematical Content.

Substrand **Titles that Address the Substrand**

(Gr. 4-6) Solve problems using a variety of strategies (for example: look for a simpler problem, or working backwards).

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Solve multi-step problems and problems with multiple solutions or no solution; and recognize problems where more information is needed.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Use problem-solving approaches to investigate and understand mathematical content.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Verify and interpret results with respect to the original problem.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Demonstrate that a problem may be solved in more than one way.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Develop confidence, perseverance, and persistence in problem solving both independently and in groups.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 4-6) Generalize solutions and apply strategies to new problem situations.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Functions, Relations And Algebra

Strand: Students Will Use Algebraic Concepts And Processes To Represent Situations That Involve Variable Quantities With Expressions, Equations, Inequalities, Matrices And Graphs.

Substrand Titles that Address the Substrand

(Gr. 7-12) Simplify algebraic expressions using the standard order of operations.

Quarter Mile Math Level 3

(Gr. 7-12) Model and solve problems that involve varying quantities with variables, expressions, equations, inequalities, absolute values, vectors, and matrices.

Quarter Mile Math Level 3

(Gr. 7-12) Evaluate algebraic expressions for given values of the variable.

Quarter Mile Math Level 3

(Gr. 7-12) Solve equations and inequalities in one or two variables, by informal and formal algebraic methods.

Quarter Mile Math Level 3

(Gr. 7-12) Understand the logic and purposes of algebraic procedures.

Quarter Mile Math Level 3

Subject: MATH

Standard: Numbers, Numeration, Operations, And Number Theory

Strand: Students Will Compute.

Substrand Titles that Address the Substrand

(Gr. 7-12) Apply the standard algebraic order of operations with real numbers.

Quarter Mile Math Level 3

(Gr. 7-12) Apply the properties of exponents with real numbers.

Quarter Mile Math Level 2

(Gr. 7-12) Simplify expressions involving the use of grouping symbols such as parentheses.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Numbers, Numeration, Operations, And Number Theory

Strand: Students Will Understand The Concepts Of Number Operations.

Substrand Titles that Address the Substrand

(Gr. 7-12) Demonstrate an understanding of the operations of addition, subtraction, multiplication, and division of rational numbers, and

the effect of performing these operations (for example, what can one say about the quotient when dividing by a fraction between 0 and 1?).

Quarter Mile Math Level 3

(Gr. 7-12) Understand the standard algebraic order of operations.

Quarter Mile Math Level 3

(Gr. 7-12) Understand the properties of exponents.

Quarter Mile Math Level 2

Subject: MATH

Standard: Numbers, Numeration, Operations, And Number Theory

Strand: Students Will Use Mental Computation And Estimation Skills And Strategies And Know When It Is Appropriate To Do So.

Substrand	Titles that Address the Substrand
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(Gr. 7-12) Determine the reasonableness of answers for problems involving arithmetic operations on real numbers.

Quarter Mile Math Level 3