

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

Grades K - 4

Subject: MATH

Standard: Algebra

Strand: All Students Will Develop An Understanding Of Algebraic Concepts And Processes And Will Use Them To Represent And Analyze Relationships Among Variable Quantities And To Solve Problems.

Substrand Titles that Address the Substrand

(Gr. K-4) 1. Understand and represent numerical situations using variables, expressions, and number sentences.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. K-4) 3. Understand and use properties of operations and numbers.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. K-4) 4. Construct and solve open sentences (example: $3 + ? = 7$) that describe real-life situations.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

Subject: MATH

Standard: Communicating Mathematics

Strand: All Students Will Communicate Mathematically Through Written, Oral, Symbolic, And Visual Forms Of Expression.

Substrand Titles that Address the Substrand

(Gr. K-12) 2. Identify and explain key mathematical concepts, and model situations using oral, written, concrete, pictorial, and graphical methods.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Conceptual Building Blocks Of Calculus

Strand: All Students Will Develop An Understanding Of The Conceptual Building Blocks Of Calculus And Will Use Them To Model And Analyze Natural Phenomena.

Substrand Titles that Address the Substrand

(Gr. K-4) 1. Investigate and describe patterns that continue indefinitely.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

Subject: MATH

Standard: Discrete Mathematics

Strand: All Students Will Apply The Concepts And Methods Of Discrete Mathematics To Model And Explore A Variety Of Practical Situations.

Substrand Titles that Address the Substrand

(Gr. K-4) 1. Explore a variety of puzzles, games, and counting problems.
Quarter Mile Math Level 1

Subject: MATH

Standard: Estimation

Strand: All Students Will Use A Variety Of Estimation Strategies And Recognize Situations In Which Estimation Is Appropriate.

Substrand Titles that Address the Substrand

(Gr. K-4) 4. Explore, construct, and use a variety of estimation strategies.
Quarter Mile Math Level 1
Quarter Mile Math Level 2

(Gr. K-8) 5. Recognize when estimation is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.

Quarter Mile Math Level 1
Quarter Mile Math Level 2

(Gr. K-12) 6. Determine the reasonableness of an answer by estimating the result of operations.
Quarter Mile Math Level 1
Quarter Mile Math Level 2

(Gr. K-4) 7. Apply estimation in working with quantities, measurement, time, computation, and problem solving.
Quarter Mile Math Level 1
Quarter Mile Math Level 2

Subject: MATH

Standard: Excellence And Equity For All Students

Strand: All Students Will Demonstrate High Levels Of Mathematical Thought Through Experiences Which Extend Beyond Traditional Computation, Algebra, And Geometry.

Substrand Titles that Address the Substrand

(Gr. K-12) 4. Understand the important role that mathematics plays in their own success, regardless of career.
Quarter Mile Math Level 1
Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. K-12) 6. Receive services that help them understand the mathematical skills and concepts necessary to assure success in the core curriculum.

Quarter Mile Math Level 1
Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. K-12) 10. Are challenged to maximize their mathematical achievements at all grade levels.
Quarter Mile Math Level 1
Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematical Connections

Strand: All Students Will Connect Mathematics To Other Learning By Understanding The Interrelationships Of Mathematical Ideas And The Roles That Mathematics And Mathematical Modeling Play In Other Disciplines And In Life.

Substrand Titles that Address the Substrand

(Gr. K-8) 4. Explore problems and describe and confirm results using various representations.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. K-4) 5. Use one mathematical idea to extend understanding of another.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: All Students Will Develop Number Sense And An Ability To Represent Numbers In A Variety Of Forms And Use Numbers In Diverse Situations.

Substrand Titles that Address the Substrand

(Gr. K-4) 2. Develop an understanding of place value concepts and numeration in relationship to counting and grouping.

Quarter Mile Math Level 1

(Gr. K-4) 3. See patterns in number sequences, and use pattern-based thinking to understand extensions of the number system.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. K-4) 4. Develop a sense of the magnitudes of whole numbers, commonly used fractions, and decimals.

Quarter Mile Math Level 2

(Gr. K-4) 5. Understand the various uses of numbers including counting, measuring, labeling, and indicating location.

Quarter Mile Math Level 1

(Gr. K-4) 6. Count and perform simple computations with money.

Quarter Mile Math Level 2

(Gr. K-4) 7. Use models to relate whole numbers, commonly used fractions, and decimals to each other, and to represent equivalent forms of the same number.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

(Gr. K-4) 8. Compare and order whole numbers, commonly used fractions, and decimals.

Quarter Mile Math Level 1

Quarter Mile Math Level 2

Subject: MATH

Standard: Numerical Operations

Strand: All Students Will Understand, Select, And Apply Various Methods Of Performing Numerical Operations.

Strand: All Students Will Develop An Understanding Of Algebraic Concepts And Processes And Will Use Them To Represent And Analyze Relationships Among Variable Quantities And To Solve Problems.

Substrand Titles that Address the Substrand

(Gr. 5-8) 5. Understand and use variables, expressions, equations, and inequalities.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Communicating Mathematics

Strand: All Students Will Communicate Mathematically Through Written, Oral, Symbolic, And Visual Forms Of Expression.

Substrand Titles that Address the Substrand

(Gr. 5-12) 6. Identify and explain key mathematical concepts and model situations using geometric and algebraic methods.

Quarter Mile Math Level 3

Subject: MATH

Standard: Conceptual Building Blocks Of Calculus

Strand: All Students Will Develop An Understanding Of The Conceptual Building Blocks Of Calculus And Will Use Them To Model And Analyze Natural Phenomena.

Substrand Titles that Address the Substrand

(Gr. 5-8) 7. Represent, analyze, and predict relations between quantities, especially quantities changing over time.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Estimation

Strand: All Students Will Use A Variety Of Estimation Strategies And Recognize Situations In Which Estimation Is Appropriate.

Substrand Titles that Address the Substrand

(Gr. 5-8) 8. Develop, apply, and explain a variety of different estimation strategies in problem situations involving quantities and measurement.

Quarter Mile Math Level 2

(Gr. 5-8) 9. Use equivalent representations of numbers such as fractions, decimals, and percents to facilitate estimation.

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematical Connections

Strand: All Students Will Connect Mathematics To Other Learning By Understanding The Interrelationships Of Mathematical Ideas And The Roles That Mathematics And Mathematical Modeling Play In Other Disciplines And In Life.

Substrand Titles that Address the Substrand

(Gr. 5-12) 11. Recognize situations in other disciplines in which mathematical models may be applicable, and apply appropriate models, mathematical reasoning, and problem solving to those situations.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 5-12) 8. Recognize and apply unifying concepts and processes which are woven throughout mathematics.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Number Sense

Strand: All Students Will Develop Number Sense And An Ability To Represent Numbers In A Variety Of Forms And Use Numbers In Diverse Situations.

Substrand

Titles that Address the Substrand

(Gr. 5-8) 10. Understand money notations, count and compute money, and recognize the decimal nature of United States currency.

Quarter Mile Math Level 2

(Gr. 5-8) 12. Develop number sense necessary for estimation.

Quarter Mile Math Level 2

(Gr. 5-8) 11. Extend their understanding of the number system by constructing meanings for integers, rational numbers, percents, exponents, roots, absolute values, and numbers represented in scientific notation.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 5-8) 13. Expand the sense of magnitudes of different number types to include integers, rational numbers, and roots.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 5-8) 15. Develop and use order relations for integers and rational numbers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 5-8) 18. Investigate the relationships among fractions, decimals, and percents, and use all of them appropriately.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 5-8) 19. Identify, derive, and compare properties of numbers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Numerical Operations

Strand: All Students Will Understand, Select, And Apply Various Methods Of Performing Numerical Operations.

Substrand

Titles that Address the Substrand

(Gr. 5-8) 8. Extend their understanding and use of arithmetic operations to fractions, decimals, integers, and rational numbers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 5-8) 9. Extend their understanding of basic arithmetic operations on whole numbers to include powers and roots.

Quarter Mile Math Level 2

(Gr. 5-8) 10. Develop, apply, and explain procedures for computation and estimation with whole numbers, fractions, decimals, integers, and rational numbers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 5-8) 11. Develop, apply, and explain methods for solving problems involving proportions and percents.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 5-8) 12. Understand and apply the standard algebraic order of operations.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Patterns, Relationships, And Functions

Strand: All Students Will Develop An Understanding Of Patterns, Relationships, And Functions And Will Use Them To Represent And Explain Real-world Phenomena.

Substrand

Titles that Address the Substrand

(Gr. 5-8) 7. Represent and describe mathematical relationships with tables, rules, simple equations, and graphs.

Quarter Mile Math Level 3

(Gr. 5-8) 11. Understand and describe the general behavior of functions.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Probability And Statistics

Strand: All Students Will Develop An Understanding Of Statistics And Probability And Will Use Them To Describe Sets Of Data, Model Situations, And Support Appropriate Inferences And Arguments.

Substrand

Titles that Address the Substrand

(Gr. 5-8) 10. Select and use appropriate graphical representations and measures of central tendency (mean, mode, and median) for sets of data.

Quarter Mile Math Level 2

Subject: MATH

Standard: Problem Solving

Strand: All Students Will Develop The Ability To Pose And Solve Mathematical Problems In Mathematics, Other Disciplines, And Everyday Experiences.

Substrand

Titles that Address the Substrand

(Gr. 5) 13. Recognize that there may be multiple ways to solve a problem, weigh their relative merits, and select and use appropriate problem-solving strategies.

Quarter Mile Math Level 2

(Gr. 5-12) 14. Persevere in developing alternative problem-solving strategies if initially selected approaches do not work.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Grades 9 - 12

Subject: MATH

Standard: Algebra

Strand: All Students Will Develop An Understanding Of Algebraic Concepts And Processes And Will Use Them To Represent And Analyze Relationships Among Variable Quantities And To Solve Problems.

Substrand Titles that Address the Substrand

(Gr. 9-12) 18. Understand the logic and purposes of algebraic procedures.

Quarter Mile Math Level 3

Subject: MATH

Standard: Discrete Mathematics

Strand: All Students Will Apply The Concepts And Methods Of Discrete Mathematics To Model And Explore A Variety Of Practical Situations.

Substrand Titles that Address the Substrand

(Gr. 9-12) 12. Use basic principles to solve combinatorial and algorithmic problems.

Quarter Mile Math Level 3

(Gr. 9-12) 13. Use discrete models to represent and solve problems.

Quarter Mile Math Level 3

Subject: MATH

Standard: Number Sense

Strand: All Students Will Develop Number Sense And An Ability To Represent Numbers In A Variety Of Forms And Use Numbers In Diverse Situations.

Substrand Titles that Address the Substrand

(Gr. 9-12) 22. Extend their intuitive grasp of number relationships, uses, and interpretations and develop an ability to work with rational and irrational numbers.

Quarter Mile Math Level 3

Subject: MATH

Standard: Numerical Operations

Strand: All Students Will Understand, Select, And Apply Various Methods Of Performing Numerical Operations.

Substrand Titles that Address the Substrand

(Gr. 9-12) 13. Extend their understanding and use of operations to real numbers and algebraic procedures.

Quarter Mile Math Level 3

Subject: MATH

Standard: Problem Solving

Strand: All Students Will Develop The Ability To Pose And Solve Mathematical Problems In Mathematics, Other Disciplines, And Everyday Experiences.

Substrand Titles that Address the Substrand

(Gr. 9-12) 18. Explore the validity and efficiency of various problem-posing and problem-solving strategies, and develop alternative strategies and generalizations as needed.

Quarter Mile Math Level 2

Quarter Mile Math Level 3