

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

Grades K - K

Subject: MATH

Standard: Mathematics

Strand: Standard 1: Number and Operations (MA.S.1) Demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems; demonstrate meaning

Substrand Titles that Address the Substrand

(Gr. K) MA.K.1.1 count forward to 20 and backward from 10 with and without objects.

Quarter Mile Math Level 1

(Gr. K) MA.K.1.2 read, write, order, and compare numbers to 20.

Quarter Mile Math Level 1

(Gr. K) MA.K.1.3 count and group concrete items by ones, fives, and tens.

Quarter Mile Math Level 1

(Gr. K) MA.K.1.4 model and identify place value of each digit utilizing standard and expanded form through 20.

Quarter Mile Math Level 1

(Gr. K) MA.K.1.6 estimate the number of objects in a group of 20 or less and count to determine reasonableness.

Quarter Mile Math Level 1

(Gr. K) MA.K.1.8 model addition and subtraction of whole numbers using 10 or less items and write the corresponding number sentence.

Quarter Mile Math Level 1

(Gr. K) MA.K.1.9 understand meanings of operations and the relationship between addition and subtraction (e.g., identity element of addition, commutative property).

Quarter Mile Math Level 1

(Gr. K) MA.K.1.10 solve grade level appropriate problems using a variety of strategies.

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand Titles that Address the Substrand

(Gr. K) MA.K.2.3 model and identify patterns of counting by 5's and 10's.

Quarter Mile Math Level 1

Grades 1 - 1

Subject: MATH

Standard: Mathematics

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand Titles that Address the Substrand

(Gr. 1) MA.1.2.4 identify and write number patterns by 2's, 5's, and 10's.

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics

Strand: Standard 1: Number and Operations (MA.S.1) Demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems; demonstrate meaning

Substrand Titles that Address the Substrand

(Gr. 1) MA.1.1.1 count forward to 100 and backward from 20 with and without objects.

Quarter Mile Math Level 1

(Gr. 1) MA.1.1.2 read, write, order, and compare numbers to 100.

Quarter Mile Math Level 1

(Gr. 1) MA.1.1.3 model and identify odd and even numbers to 20 with and without objects.

Quarter Mile Math Level 1

(Gr. 1) MA.1.1.4 count and group concrete items by ones and tens to 100.

Quarter Mile Math Level 1

(Gr. 1) MA.1.1.5 model and identify place value of each digit utilizing standard and expanded form to 100.

Quarter Mile Math Level 1

(Gr. 1) MA.1.1.6 round any two-digit number to nearer 10 to better understand place value.

Quarter Mile Math Level 1

(Gr. 1) MA.1.1.7 identify and read ordinal numbers 1st - 20th.

Quarter Mile Math Level 1

(Gr. 1) MA.1.1.11 understand meanings of operations and the relationship between addition and subtraction (e.g., identify element of addition, commutative property, fact families, inverse operations).

Quarter Mile Math Level 1

(Gr. 1) MA.1.1.12 memorize basic addition facts with sums to 10 and corresponding subtraction facts.

Quarter Mile Math Level 1

(Gr. 1) MA.1.1.13 model 2-digit addition and subtraction without regrouping.

Quarter Mile Math Level 1

(Gr. 1) MA.1.1.14 add three numbers with a sum of 18 or less.

Quarter Mile Math Level 1

Grades 2 - 2

Subject: MATH

Standard: Mathematics

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand Titles that Address the Substrand

(Gr. 2) MA.2.2.3 model and identify patterns of counting by 3's and 4's.

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics

Strand: Standard 1: Number and Operations (MA.S.1) Demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems; demonstrate meaning

Substrand Titles that Address the Substrand

(Gr. 2) MA.2.1.1 read, write, order, and compare numbers to 1,000.

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.2 identify any number as odd or even.

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.3 count and group concrete items by 1's, 10's, and 100's to 1,000.

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.4 model and identify place value of each digit utilizing standard and expanded form through 1000.

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.5 identify and read any ordinal number.

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.6 round to any 3-digit number nearer 10 and 100 to better understand place value.

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.8 understand meaning of operations and the relationship between addition and subtraction (e.g., identity element of addition, associative property, commutative property, inverse operations, fact families).

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.9 memorize basic addition facts with sums to 18 and corresponding subtraction facts.

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.10 model 2- and 3-digit addition and subtraction with regrouping.

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.11 add and subtract 2- and 3-digit numbers without regrouping.

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.12 use rounding to determine the reasonableness of a sum or a difference.

Quarter Mile Math Level 1

(Gr. 2) MA.2.1.13 solve grade level appropriate story problems that require one or two-step solutions using multiple strategies.

Quarter Mile Math Level 1

Grades 3 - 3

Subject: MATH

Standard: Mathematics

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand Titles that Address the Substrand

(Gr. 3) MA.3.2.3 identify and write number patterns of 3's and 4's.

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics

Strand: Standard 1: Number and Operations (MA.S.1) Demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems; demonstrate meaning

Substrand Titles that Address the Substrand

(Gr. 3) MA.3.1.1 read, write, order, and compare numbers to 10,000.

Quarter Mile Math Level 1

(Gr. 3) MA.3.1.2 read, write, order, and compare decimals to hundredths with models.

Quarter Mile Math Level 2

(Gr. 3) MA.3.1.3 identify place value of each digit utilizing standard and expanded form to 10,000.

Quarter Mile Math Level 1

(Gr. 3) MA.3.1.4 estimate to nearer 10,000 and 1,000 using rounding, benchmarks, and compatible numbers to determine reasonableness of an answer.

Quarter Mile Math Level 1

(Gr. 3) MA.3.1.10 add and subtract 2- and 3-digit whole numbers and money without and with regrouping.

Quarter Mile Math Level 1

(Gr. 3) MA.3.1.11 understand multiplication as repeated addition and division as repeated subtraction

Quarter Mile Math Level 1

(Gr. 3) MA.3.1.12 understand meanings of operations and the relationship between multiplication and division (e.g., identity element of multiplication, commutative property, property of zero, fact families, associative property).

Quarter Mile Math Level 1

(Gr. 3) MA.3.1.13 memorize basic multiplication facts 0-5 and the corresponding division facts.

Quarter Mile Math Level 1

Grades 4 - 4

Subject: MATH

Standard: Mathematics

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand Titles that Address the Substrand

(Gr. 4) MA.4.2.3 understand the relationship between number patterns and multiples.

Quarter Mile Math Level 1

(Gr. 4) MA.4.1.18 develop fluency in addition and subtraction of all whole numbers.

Quarter Mile Math Level 2

Grades 5 - 5

Subject: MATH

Standard: Mathematics

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand

Titles that Address the Substrand

(Gr. 5) MA.5.2.1 explore a variety of patterns with missing elements (e.g., square numbers, powers, triangular numbers, arithmetic sequences).

Quarter Mile Math Level 2

(Gr. 5) MA.5.2.3 write an equation using a variable to solve problems.

Quarter Mile Math Level 2

(Gr. 5) MA.5.2.4 evaluate an expression given a value for the variable.

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematics

Strand: Standard 1: Number and Operations (MA.S.1) Demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems; demonstrate meaning

Substrand

Titles that Address the Substrand

(Gr. 5) MA.5.1.1 read, write, order and compare all whole numbers.

Quarter Mile Math Level 2

(Gr. 5) MA.5.1.2 read, write, order and compare all decimals.

Quarter Mile Math Level 2

(Gr. 5) MA.5.1.3 identify place value of each digit utilizing standard and expanded form in any whole number.

Quarter Mile Math Level 2

(Gr. 5) MA.5.1.4 estimate with whole numbers and decimals, including money, to determine reasonableness of an answer.

Quarter Mile Math Level 2

(Gr. 5) MA.5.1.5 identify and use the divisibility rules of 2, 3, 5, 9 and 10.

Quarter Mile Math Level 2

(Gr. 5) MA.5.1.6 compare and order fractions, improper fractions and mixed numbers with like and unlike denominators (e.g., greatest common factor, lowest common multiple).

Quarter Mile Math Level 2

(Gr. 5) MA.5.1.7 model and write equivalencies of fractions, decimals, percents, and ratios.

Quarter Mile Math Level 2

(Gr. 5) MA.5.1.8 add and subtract fractions and mixed numbers.

Quarter Mile Math Level 2

(Gr. 5) MA.5.1.9 model multiplication and division of fractions to solve the algorithm.

Quarter Mile Math Level 2

(Gr. 5) MA.5.1.10 model multiplication of decimals and division of decimals by a whole number divisor.

Quarter Mile Math Level 2

(Gr. 5) MA.5.1.11 develop fluency in addition, subtraction, multiplication and division of whole numbers.

Quarter Mile Math Level 2

Grades 6 - 6

Subject: MATH

Standard: Mathematics

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand

Titles that Address the Substrand

(Gr. 6) MA.6.2.1 simplify numerical expressions using order of operations.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) MA.6.2.2 identify missing elements in arithmetic and geometric patterns.

Quarter Mile Math Level 2

(Gr. 6) MA.6.2.3 explore a variety of patterns, including perfect squares, square roots and exponents.

Quarter Mile Math Level 2

(Gr. 6) MA.6.2.4 use input/output models and spreadsheets to evaluate functions.

Quarter Mile Math Level 3

(Gr. 6) MA.6.2.6 identify like terms and monomials.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) MA.6.2.7 model addition, subtraction, multiplication and division of integers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematics

Strand: Standard 1: Number and Operations (MA.S.1) Demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems; demonstrate meaning

Substrand

Titles that Address the Substrand

(Gr. 6) MA.6.1.1 read, write, order, and compare numbers using scientific notation.

Quarter Mile Math Level 2

(Gr. 6) MA.6.1.3 use prime factorization to determine the greatest common factor and least common multiple.

Quarter Mile Math Level 2

(Gr. 6) MA.6.1.5 use estimation to solve problems with whole numbers, fractions and decimals.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) MA.6.1.6 solve problems in context involving addition, subtraction, multiplication, and division of whole numbers, fractions, mixed numbers and decimals.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) MA.6.1.8 convert between fractions, mixed numbers, decimals and percents.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) MA.6.1.9 find the percent of a number.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematics

Strand: Standard 5: Data Analysis and Probability (MA.S.5) Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them; select

Substrand Titles that Address the Substrand

(Gr. 6) MA.6.5.2 interpret data using mean, median, mode, and range.

Quarter Mile Math Level 2

Grades 7 - 7

Subject: MATH

Standard: Mathematics

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand Titles that Address the Substrand

(Gr. 7) MA.7.2.1 find missing elements in a variety of arithmetic and geometric patterns including algebraic sequences and series.

Quarter Mile Math Level 2

(Gr. 7) MA.7.2.2 simplify and evaluate numerical and algebraic expressions with whole numbers, integers, absolute value and exponents using the order of operations and exponential rules.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 7) MA.7.2.3 add, subtract, multiply and divide monomials with no more than two variables and no exponent greater than two.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 7) MA.7.2.4 find and use the Greatest Common Factor (GCF) and Least Common Multiple (LCM) of a set of monomials or algebraic fractions using prime factorization and exponent rules.

Quarter Mile Math Level 2

(Gr. 7) MA.7.2.6 use ratios and proportions to represent and solve application problems.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 7) MA.7.2.9 solve one-step linear equations containing whole numbers, fractions, decimals and integers with integer solutions.

Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematics

Strand: Standard 1: Number and Operations (MA.S.1) Demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems; demonstrate meaning

Substrand **Titles that Address the Substrand**

(Gr. 7) MA.7.1.1 compare and order integers, decimals, and fractions using symbols (<,>=) manipulatives and graphing on a number line.

Quarter Mile Math Level 3

(Gr. 7) MA.7.1.2 find powers, squares, and square roots using manipulatives, models, calculators, tables and mental math.

Quarter Mile Math Level 2

(Gr. 7) MA.7.1.4 recognize and write rational numbers in the form a/b.

Quarter Mile Math Level 3

(Gr. 7) MA.7.1.5 perform operations with integers (e.g., addition, subtraction, multiplication, division).

Quarter Mile Math Level 3

(Gr. 7) MA.7.1.7 solve application problems with whole numbers, decimals, fractions and percents.

Quarter Mile Math Level 3

(Gr. 7) MA.7.1.8 use appropriate estimation strategies in problem situations including evaluating the reasonableness of a solution.

Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematics

Strand: Standard 5: Data Analysis and Probability (MA.S.5) Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them; select

Substrand **Titles that Address the Substrand**

(Gr. 7) MA.7.5.4 solve application problems involving measures of central tendency (mean, median, mode) and dispersion (range) from data, graphs, tables, and experiments using appropriate technology.

Quarter Mile Math Level 2

Grades 8 - 8

Subject: MATH

Standard: Mathematics

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand **Titles that Address the Substrand**

(Gr. 8) MA.8.2.1 use order-of-operations and exponents rules to solve problems with numerical and algebraic expressions containing whole numbers, integers, absolute value, fractions and exponents.

Quarter Mile Math Level 3

(Gr. 8) MA.8.2.2 solve one and two step linear equations and inequalities with integers, fractions, and decimal solutions.

Quarter Mile Math Level 3

(Gr. 8) MA.8.2.3 use ratio and proportion to create and solve equations.

Quarter Mile Math Level 3

(Gr. 8) MA.8.2.4 add and subtract polynomials limited to two variables and positive exponents.

Quarter Mile Math Level 3

(Gr. 8) MA.8.2.5 apply algebraic equations and expressions to solve application problems.

Quarter Mile Math Level 3

(Gr. 8) MA.8.2.8 formulate and apply a rule to generate an arithmetic, geometric and algebraic pattern.

Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematics

Strand: Standard 1: Number and Operations (MA.S.1) Demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems; demonstrate meaning

Substrand Titles that Address the Substrand

(Gr. 8) MA.8.1.1 compare and order rational and irrational numbers.

Quarter Mile Math Level 3

(Gr. 8) MA.8.1.2 utilize the properties of terminating, repeating, and non-repeating decimals, and conversions between fractions, mixed numbers, and decimals.

Quarter Mile Math Level 3

(Gr. 8) MA.8.1.4 use powers, squares, and square roots to solve problems.

Quarter Mile Math Level 2

(Gr. 8) MA.8.1.5 use estimation techniques with whole numbers, decimals, percent, fractions and mixed numbers to solve and verify solutions in application problems.

Quarter Mile Math Level 3

(Gr. 8) MA.8.1.6 solve application problems with whole numbers, decimals, fractions, percents and integers including, but not limited to, rates, tips, discounts, sales tax and interest.

Quarter Mile Math Level 3

Grades 9 - 12

Subject: MATH

Standard: Algebra

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand Titles that Address the Substrand

(Gr. 9-12) A1.2.1 simplify and evaluate algebraic expressions using grouping symbols, order of operations and properties of real numbers with justification of steps.

Quarter Mile Math Level 3

(Gr. 9-12) A1.2.2 solve multi-step linear equations in one variable and apply skills toward solving practical problems.

Quarter Mile Math Level 3

(Gr. 9-12) A12.3 solve multi-step linear inequalities in one variable, interpret the results on a number line and apply the skills toward solving practical problems.

Quarter Mile Math Level 3

(Gr. 9-12) A1.2.4 solve literal equations for a given variable and apply the skills toward solving practical problems.

Quarter Mile Math Level 3

(Gr. 9-12) A1.2.17 add, subtract, multiply and divide simple rational expressions.

Quarter Mile Math Level 3

Subject: MATH

Standard: Algebra/Geometry Preparation

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand Titles that Address the Substrand

(Gr. 9-12) AGP.2.1 substitute values, evaluate expressions involving variables, and calculate formulas to solve application problems.

Quarter Mile Math Level 3

(Gr. 9-12) AGP.2.2 solve equations with at least two operations.

Quarter Mile Math Level 3

Subject: MATH

Standard: Algebra/Geometry Preparation

Strand: Standard 1: Number and Operations (MA.S.1) Demonstrate understanding of numbers, ways of representing numbers, and relationships among numbers and number systems; demonstrate meaning

Substrand Titles that Address the Substrand

(Gr. 9-12) AGP.1.2 add, subtract, multiply, and divide decimals, integers, fractions and mixed numbers.

Quarter Mile Math Level 3

Subject: MATH

Standard: Applied Mathematics I

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand Titles that Address the Substrand

(Gr. 9-12) AM1.2.1 solve practical problems involving computation using estimation.

Quarter Mile Math Level 3

(Gr. 9-12) AM1.2.5 evaluate algebraic expressions using grouping symbols, order of operations and properties of real numbers with justification of steps.

Quarter Mile Math Level 3

(Gr. 9-12) AM1.2.8 solve literal equations for a given variable and apply the skills toward solving practical problems.

Quarter Mile Math Level 3

(Gr. 9-12) AM1.2.11 solve multi-step linear inequalities in one variable, interpret the results on a number line and apply the skills toward solving practical problems.

Quarter Mile Math Level 3

Subject: MATH

Standard: Applied Mathematics II

Strand: Standard 2: Algebra (MA.S.2) Demonstrate understanding of patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols;

Substrand	Titles that Address the Substrand
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(Gr. 9-12) AM2.2.1 analyze a given set of data for the existence of a pattern numerically, algebraically and graphically; determine the domain and range; and determine if the relation is a function.	
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Quarter Mile Math Level 2

(Gr. 9-12) AM2.2.10 add, subtract, multiply and divide simple rational expressions.	
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Quarter Mile Math Level 3