

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

**Grades K - K**

**Subject: MATH**

**Standard: Computation and Estimation**

**Strand: Computation and Estimation**

**Substrand Titles that Address the Substrand**

(Gr. K) K.6 The student will add and subtract whole numbers, using up to 10 concrete items.  
**Quarter Mile Math Level 1**

**Subject: MATH**

**Standard: Number and Number Sense**

**Strand: Number and Number Sense**

**Substrand Titles that Address the Substrand**

(Gr. K) K.5 The student will count forward to 30 and backward from 10.  
**Quarter Mile Math Level 1**

**Grades 1 - 1**

**Subject: MATH**

**Standard: Computation and Estimation**

**Strand: Computation and Estimation**

**Substrand Titles that Address the Substrand**

(Gr. 1) 1.8 The student will recall basic addition facts — i.e., sums to 10 or less — and the corresponding subtraction facts.  
**Quarter Mile Math Level 1**

**Subject: MATH**

**Standard: Number and Number Sense**

**Strand: Number and Number Sense**

**Substrand Titles that Address the Substrand**

(Gr. 1) 1.1 The student will count objects in a given set containing between 1 and 100 objects and write the corresponding numeral.  
**Quarter Mile Math Level 1**

(Gr. 1) 1.3 The student will count forward by ones, fives, and tens to 100, by twos to 20, and backward by ones from 20.  
**Quarter Mile Math Level 1**

(Gr. 1) 1.4 The student will recognize and write numerals 0 through 100.  
**Quarter Mile Math Level 1**

**Grades 2 - 2**

**Subject: MATH**

**Standard: Computation and Estimation**

**Strand: Computation and Estimation**

**Substrand Titles that Address the Substrand**

(Gr. 2) 2.6 The student will recall basic addition facts — i.e., sums to 18 or less — and the corresponding subtraction facts.

**Quarter Mile Math Level 1**

(Gr. 2) 2.7 The student, given two whole numbers whose sum is 99 or less, will a) estimate the sum; and b) find the sum, using various methods of calculation (mental computation, concrete materials, and paper and pencil).

**Quarter Mile Math Level 1**

(Gr. 2) 2.8 The student, given two whole numbers, each of which is 99 or less, will a) estimate the difference; and b) find the difference, using various methods of calculation (mental computation, concrete materials, and paper and pencil).

**Quarter Mile Math Level 1**

(Gr. 2) 2.10 The student, given a simple addition or subtraction fact, will recognize and describe the related facts which represent and describe the inverse relationship between addition and subtraction (e.g.,  $3 + \_\_ = 7$ ,  $\_\_ + 3 = 7$ ;  $7 - 3 = \_\_$ , and  $7 - \_\_ = 3$ ).

**Quarter Mile Math Level 1**

**Subject: MATH**

**Standard: Number and Number Sense**

**Strand: Number and Number Sense**

**Substrand Titles that Address the Substrand**

(Gr. 2) 2.1 The student will a) read, write, and identify the place value of each digit in a three-digit numeral, using numeration models; and b) round two-digit numbers to the nearest ten.

**Quarter Mile Math Level 1**

(Gr. 2) 2.2 The student will compare two whole numbers between 0 and 999, using symbols ( $>$ ,  $<$ , or  $=$ ) and words (greater than, less than, or equal to).

**Quarter Mile Math Level 1**

(Gr. 2) 2.5 The student will a) count forward by twos, fives, and tens to 100, starting at various multiples of 2, 5, or 10, using mental mathematics, paper and pencil, hundred chart, calculators, and/or concrete objects, as appropriate; b) count backward by tens from 100; c) group objects by threes and fours; and d) recognize even and odd numbers, using objects.

**Quarter Mile Math Level 1**

**Subject: MATH**

**Standard: Patterns, Functions, and Algebra**

**Strand: Patterns, Functions, and Algebra**

**Substrand Titles that Address the Substrand**

(Gr. 2) 2.25 The student will identify, create, and extend a wide variety of patterns, using numbers, concrete objects and pictures.

(Gr. 2) 2.26 The student will solve problems by completing a numerical sentence involving the basic facts for addition and subtraction. Examples include:  $3 + \underline{\quad} = 7$ , or  $9 - \underline{\quad} = 2$ . Students will create story problems, using the numerical sentences.

**Quarter Mile Math Level 1**

**Grades 3 - 3**

**Subject: MATH**

**Standard: Computation and Estimation**

**Strand: Computation and Estimation**

**Substrand**                      **Titles that Address the Substrand**

(Gr. 3) 3.8 The student will solve problems involving the sum or difference of two whole numbers, each 9,999 or less, with or without regrouping, using various computational methods, including calculators, paper and pencil, mental computation, and estimation.

**Quarter Mile Math Level 1**

(Gr. 3) 3.9 The student will recall the multiplication and division facts through the nines table.

**Quarter Mile Math Level 1**

(Gr. 3) 3.10 The student will represent multiplication and division, using area and set models, and create and solve problems that involve multiplication of two whole numbers, one factor 99 or less and the second factor 5 or less.

**Quarter Mile Math Level 1**

(Gr. 3) 3.11 The student will add and subtract with proper fractions having like denominators of 10 or less, using concrete materials and pictorial models representing areas/regions, lengths/measurements, and sets.

**Quarter Mile Math Level 1**

(Gr. 3) 3.12 The student will add and subtract with decimals expressed as tenths, using concrete materials, pictorial representations, and paper and pencil.

**Quarter Mile Math Level 1**

**Subject: MATH**

**Standard: Number and Number Sense**

**Strand: Number and Number Sense**

**Substrand**                      **Titles that Address the Substrand**

(Gr. 3) 3.1 The student will read and write six-digit numerals and identify the place value for each digit.

**Quarter Mile Math Level 1**

(Gr. 3) 3.2 The student will round a whole number, 9,999 or less, to the nearest ten, hundred, and thousand.

**Quarter Mile Math Level 1**

(Gr. 3) 3.3 The student will compare two whole numbers between 0 and 9,999, using symbols ( $>$ ,  $<$ , or  $=$ ) and words (greater than, less than, or equal to).

**Quarter Mile Math Level 1**

(Gr. 3) 3.4 The student will recognize and use the inverse relationships between addition/subtraction and multiplication/division to complete basic fact sentences. Students will use these relationships to solve problems such as  $5 + 3 = 8$  and  $8 - 3 = \underline{\quad}$ .

**Quarter Mile Math Level 1**

**Subject: MATH**

**Standard: Patterns, Functions, and Algebra**

**Strand: Patterns, Functions, and Algebra**

**Substrand Titles that Address the Substrand**

(Gr. 3) 3.25 The student will a) investigate and create patterns involving numbers, operations (addition and multiplication), and relations that model the identity and commutative properties for addition and multiplication; and b) demonstrate an understanding of equality by recognizing that the equal sign (=) links equivalent quantities, such as  $4 \cdot 3 = 2 \cdot 6$ .

**Quarter Mile Math Level 1**

**Grades 4 - 4**

**Subject: MATH**

**Standard: Computation and Estimation**

**Strand: Computation and Estimation**

**Substrand Titles that Address the Substrand**

(Gr. 4) 4.5 The student will estimate whole-number sums and differences and describe the method of estimation. Students will refine estimates, using terms such as closer to, between, and a little more than.

**Quarter Mile Math Level 2**

(Gr. 4) 4.6 The student will add and subtract whole numbers written in vertical and horizontal form, choosing appropriately between paper and pencil methods and calculators.

**Quarter Mile Math Level 2**

(Gr. 4) 4.7 The student will find the product of two whole numbers when one factor has two digits or fewer and the other factor has three digits or fewer, using estimation and paper and pencil. For larger products (a two-digit numeral times a three-digit numeral), estimation and calculators will be used.

**Quarter Mile Math Level 2**

(Gr. 4) 4.8 The student will estimate and find the quotient of two whole numbers, given a one-digit divisor.

**Quarter Mile Math Level 2**

(Gr. 4) 4.9 The student will a) add and subtract with fractions having like and unlike denominators of 12 or less, using concrete materials, pictorial representations, and paper and pencil; b) add and subtract with decimals through thousandths, using concrete materials, pictorial representations, and paper and pencil; and c) solve problems involving addition and subtraction with fractions having like and unlike denominators of 12 or less and with decimals expressed through thousandths, using various computational methods, including calculators, paper and pencil, mental computation, and estimation.

**Quarter Mile Math Level 2**

**Subject: MATH**

**Standard: Number and Number Sense**

**Strand: Number and Number Sense**

**Substrand Titles that Address the Substrand**

(Gr. 4) 4.1 The student will a) identify (orally and in writing) the place value for each digit in a whole number expressed through millions; b) compare two whole numbers expressed through millions, using symbols (>, <, or =); and c) round whole numbers expressed through millions to the nearest thousand, ten thousand, and hundred thousand.

**Quarter Mile Math Level 2**

(Gr. 4) 4.2 The student will a) identify, model, and compare rational numbers (fractions and mixed numbers), using concrete objects and pictures; b) represent equivalent fractions; and c) relate fractions to decimals, using concrete objects.

**Quarter Mile Math Level 2**

(Gr. 4) 4.3 The student will compare the numerical value of fractions (with like and unlike denominators) having denominators of 12 or less, using concrete materials.

**Quarter Mile Math Level 2**

(Gr. 4) 4.4 The student will a) read, write, represent, and identify decimals expressed through thousandths; b) round to the nearest whole number, tenth, and hundredth; and c) compare the value of two decimals, using symbols ( $<$ ,  $>$ , or  $=$ ), concrete materials, drawings, and calculators.

**Quarter Mile Math Level 2**

**Subject: MATH**

**Standard: Patterns, Functions, and Algebra**

**Strand: Patterns, Functions, and Algebra**

**Substrand**

**Titles that Address the Substrand**

(Gr. 4) 4.22 The student will recognize and demonstrate the meaning of equality, using symbols representing numbers, operations, and relations [e.g.,  $3 + 5 = 5 + 3$  and  $15 + (35 + 16) = (15 + 35) + 16$ ].

**Quarter Mile Math Level 2**

**Grades 5 - 5**

**Subject: MATH**

**Standard: Computation and Estimation**

**Strand: Computation and Estimation**

**Substrand**

**Titles that Address the Substrand**

(Gr. 5) 5.3 The student will create and solve problems involving addition, subtraction, multiplication, and division of whole numbers, using paper and pencil, estimation, mental computation, and calculators.

**Quarter Mile Math Level 2**

(Gr. 5) 5.4 The student will find the sum, difference, and product of two numbers expressed as decimals through thousandths, using an appropriate method of calculation, including paper and pencil, estimation, mental computation, and calculators.

**Quarter Mile Math Level 2**

(Gr. 5) 5.5 The student, given a dividend of four digits or fewer and a divisor of two digits or fewer, will find the quotient and remainder.

**Quarter Mile Math Level 2**

(Gr. 5) 5.6 The student, given a dividend expressed as a decimal through thousandths and a single-digit divisor, will find the quotient.

**Quarter Mile Math Level 2**

(Gr. 5) 5.7 The student will add and subtract with fractions and mixed numbers, with and without regrouping, and express answers in simplest form. Problems will include like and unlike denominators limited to 12 or less.

**Quarter Mile Math Level 2**

**Subject: MATH**

**Standard: Number and Number Sense**

**Strand: Number and Number Sense**

**Substrand**                      **Titles that Address the Substrand**

(Gr. 5) 5.1 The student will a) read, write, and identify the place values of decimals through thousandths; b) round decimal numbers to the nearest tenth or hundredth; and c) compare the values of two decimals through thousandths, using the symbols  $>$ ,  $<$ , or  $=$ .

**Quarter Mile Math Level 2**

(Gr. 5) 5.2 The student will a) recognize and name commonly used fractions (halves, fourths, fifths, eighths, and tenths) in their equivalent decimal form and vice versa; and b) order a given set of fractions and decimals from least to greatest. Fractions will include like and unlike denominators limited to 12 or less, and mixed numbers.

**Quarter Mile Math Level 2**

**Subject: MATH**

**Standard: Probability and Statistics**

**Strand: Probability and Statistics**

**Substrand**                      **Titles that Address the Substrand**

(Gr. 5) 5.19 The student will find the mean, median, mode, and range of a set of data.

**Quarter Mile Math Level 2**

**Grades 6 - 6**

**Subject: MATH**

**Standard: Computation and Estimation**

**Strand: Computation and Estimation**

**Substrand**                      **Titles that Address the Substrand**

(Gr. 6) 6.6 The student will a) solve problems that involve addition, subtraction, multiplication, and/or division with fractions and mixed numbers, with and without regrouping, that include like and unlike denominators of 12 or less, and express their answers in simplest form; and b) find the quotient, given a dividend expressed as a decimal through thousandths and a divisor expressed as a decimal to thousandths with exactly one non-zero digit.

**Quarter Mile Math Level 2**

**Quarter Mile Math Level 3**

(Gr. 6) 6.7 The student will use estimation strategies to solve multistep practical problems involving whole numbers, decimals, and fractions (rational numbers).

**Quarter Mile Math Level 2**

**Quarter Mile Math Level 3**

(Gr. 6) 6.8 The student will solve multistep consumer-application problems involving fractions and decimals and present data and conclusions in paragraphs, tables, or graphs. Planning a budget will be included.

**Quarter Mile Math Level 2**

**Quarter Mile Math Level 3**

**Subject: MATH**

**Standard: Number and Number Sense**

**Strand: Number and Number Sense**

**Substrand**                      **Titles that Address the Substrand**

(Gr. 6) 6.1 The student will identify representations of a given percent and describe orally and in writing the equivalence relationships among fractions, decimals, and percents.

**Quarter Mile Math Level 2**

### Quarter Mile Math Level 3

(Gr. 6) 6.3 The student will a) find common multiples and factors, including least common multiple and greatest common factor; b) identify and describe prime and composite numbers; and identify and describe the characteristics of even and odd integers; and c) identify and describe the characteristics of even and odd integers.

**Quarter Mile Math Level 2**

**Quarter Mile Math Level 3**

(Gr. 6) 6.4 The student will compare and order whole numbers, fractions, and decimals, using concrete materials, drawings or pictures, and mathematical symbols.

**Quarter Mile Math Level 2**

**Quarter Mile Math Level 3**

(Gr. 6) 6.5 The student will identify, represent, order, and compare integers.

**Quarter Mile Math Level 2**

**Quarter Mile Math Level 3**

**Subject: MATH**

**Standard: Patterns, Functions, and Algebra**

**Strand: Patterns, Functions, and Algebra**

**Substrand**                      **Titles that Address the Substrand**

(Gr. 6) 6.21 The student will investigate, describe, and extend numerical and geometric patterns, including triangular numbers, patterns formed by powers of 10, and arithmetic sequences.

**Quarter Mile Math Level 2**

(Gr. 6) 6.23 The student will a) model and solve algebraic equations, using concrete materials; b) solve one-step linear equations in one variable, involving whole number coefficients and positive rational solutions; and c) use the following algebraic terms appropriately: variable, coefficient, term, and equation.

**Quarter Mile Math Level 2**

**Quarter Mile Math Level 3**

**Subject: MATH**

**Standard: Probability and Statistics**

**Strand: Probability and Statistics**

**Substrand**                      **Titles that Address the Substrand**

(Gr. 6) 6.19 The student will describe the mean, median, and mode as measures of central tendency, describe the range, and determine their meaning for a set of data.

**Quarter Mile Math Level 2**

### Grades 7 - 7

**Subject: MATH**

**Standard: Computation and Estimation**

**Strand: Computation and Estimation**

**Substrand**                      **Titles that Address the Substrand**

(Gr. 7) 7.4 The student will a) solve practical problems using rational numbers (whole numbers, fractions, decimals) and percents; and b) solve consumer-application problems involving tips, discounts, sales tax, and simple interest.

**Quarter Mile Math Level 2**

(Gr. 7) 7.5 The student will formulate rules for and solve practical problems involving basic operations (addition, subtraction, multiplication, and division) with integers.

**Quarter Mile Math Level 3**

(Gr. 7) 7.6 The student will use proportions to solve practical problems, which may include scale drawings, that contain rational numbers (whole numbers, fractions, and decimals) and percents.

**Quarter Mile Math Level 3**

**Subject: MATH**

**Standard: Number and Number Sense**

**Strand: Number and Number Sense**

**Substrand Titles that Address the Substrand**

(Gr. 7) 7.1 The student will compare, order, and determine equivalent relationships between fractions, decimals, and percents, including use of scientific notation for numbers greater than 10.

**Quarter Mile Math Level 3**

(Gr. 7) 7.2 The student will simplify expressions that contain rational numbers (whole numbers, fractions, and decimals) and positive exponents, using order of operations, mental mathematics, and appropriate tools.

**Quarter Mile Math Level 3**

**Subject: MATH**

**Standard: Number and Number Sense**

**Strand: Number and Number Sense**

**Substrand Titles that Address the Substrand**

(Gr. 8) 8.1 The student will a) simplify numerical expressions involving positive exponents, using rational numbers, order of operations, and properties of operations with real numbers; b) recognize, represent, compare, and order numbers expressed in scientific notation; and c) compare and order decimals, fractions, percents, and numbers written in scientific notation.

**Quarter Mile Math Level 3**

(Gr. 8) 8.3 The student will solve practical problems involving rational numbers, percents, ratios, and proportions. Problems will be of varying complexities and will involve real-life data, such as finding a discount and discount prices and balancing a checkbook.

**Quarter Mile Math Level 3**

(Gr. 8) 8.4 The student will apply the order of operations to evaluate algebraic expressions for given replacement values of the variables. Problems will be limited to positive exponents.

**Quarter Mile Math Level 3**

**Subject: MATH**

**Standard: Algebra I**

**Strand: Algebra I**

**Substrand Titles that Address the Substrand**

(Gr. 9-12) A.1 The student will solve multistep linear equations and inequalities in one variable, solve literal equations (formulas) for a given variable, and apply these skills to solve practical problems. Graphing calculators will be used to confirm algebraic solutions.

**Quarter Mile Math Level 3**



(Gr. 9-12) A.2 The student will represent verbal quantitative situations algebraically and evaluate these expressions for given replacement values of the variables. Students will choose an appropriate computational technique, such as mental mathematics, calculator, or paper and pencil.

**Quarter Mile Math Level 3**

(Gr. 9-12) A.3 The student will justify steps used in simplifying expressions and solving equations and inequalities. Justifications will include the use of concrete objects; pictorial representations; and the properties of real numbers, equality, and inequality.

**Quarter Mile Math Level 3**

**Subject: MATH**  
**Standard: Algebra II**  
**Strand: Algebra II**

**Substrand**                      **Titles that Address the Substrand**

(Gr. 9-12) All.2 The student will add, subtract, multiply, divide, and simplify rational expressions, including complex fractions.

**Quarter Mile Math Level 2**