

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

Subject: MATH

Standard: Mathematics Content Skills

Strand: II. Number Sense

Substrand Titles that Address the Substrand

(Gr. K) F. Identify and name numerals zero through ten (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10) in and out of sequence.

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics Content Skills

Strand: V. Measurement

Substrand Titles that Address the Substrand

(Gr. K) D. Put objects in graduated order from shortest to tallest, thinnest to thickest.

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics Content Skills

Strand: II. Number Sense

Substrand Titles that Address the Substrand

(Gr. 1) A. Compare objects by size and quantity (e.g., more than, less than, equal to).

Quarter Mile Math Level 1

(Gr. 1) C. Read and write numerals to 100.

Quarter Mile Math Level 1

(Gr. 1) D. Count as many as 100 objects by ones, twos, fives, and tens.

Quarter Mile Math Level 1

(Gr. 1) E. Use ordinal numbers first through tenth.

Quarter Mile Math Level 2

(Gr. 1) G. Acquire strategies for making computations (e.g., use estimation, number sense to judge reasonableness, counting on).

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics Content Skills

Strand: III. Number Operations And Computation

Substrand Titles that Address the Substrand

(Gr. 1) B. Use strategies to develop operation sense (e.g., fact families, ten frames).

Quarter Mile Math Level 1

(Gr. 1) C. Develop and apply properties of addition using models and manipulatives (e.g., $2 + 4 = 4 + 2$, $3 + 0 = 3$).

Quarter Mile Math Level 1

(Gr. 1) D. Use models to construct addition and subtraction facts to 10 (e.g., counters, cubes, ten frames).

Quarter Mile Math Level 1

(Gr. 1) E. Write addition and subtraction number sentences for problem situations.

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics Process Skills

Strand: I. Problem Solving

Substrand

Titles that Address the Substrand

(Gr. 1-5) A. Use problem-solving approaches (e.g., act out situations, represent problems with drawings and lists, use concrete, pictorial, graphical, oral, written, and/or algebraic models, understand a problem, devise a plan, carry out the plan, look back).

Quarter Mile Math Level 1

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematics Content Skills

Strand: II. Number Sense

Substrand

Titles that Address the Substrand

(Gr. 2) A. Use concrete models of hundreds, tens, and ones to develop the concepts of place value.

Quarter Mile Math Level 1

(Gr. 2) B. Link place value concepts to the reading and writing of numbers (e.g., bean sticks, base-10 blocks).

Quarter Mile Math Level 1

(Gr. 2) C. Develop and use strategies of estimation (e.g., compose, decompose and regroup numbers, use knowledge of 10 to estimate quantities and sums [two numbers less than 10 can not add up to more than 20], use body parts to estimate measurements).

Quarter Mile Math Level 1

(Gr. 2) D. Determine whether a number is odd or even.

Quarter Mile Math Level 1

(Gr. 2) E. Represent a number in a variety of ways (e.g., write the calendar day in different ways, write 15 as $8 + 7$, write 25 as 2 tens + 5 ones).

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics Content Skills

Strand: III. Number Operations And Computation

Substrand

Titles that Address the Substrand

(Gr. 2) A. Develop operation sense by applying the following property of addition $(3 + 2) + 1 = 3 + (2 + 1)$.

Quarter Mile Math Level 1

(Gr. 2) C. Write addition and subtraction number sentences; complete addition number sentences with a missing addend and use to solve everyday problems.

Quarter Mile Math Level 1

(Gr. 2) D. Use a variety of techniques (mental, paper and pencil, concrete manipulation) to solve two-digit addition and subtraction problems with and without regrouping (e.g., floor number line, base-10 blocks).

Quarter Mile Math Level 1

(Gr. 2) E. Use a variety of strategies to develop understanding leading to the ability to recall and apply basic addition and subtraction facts to 18 (e.g., counting on, doubles, ten frames).

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics Content Skills

Strand: II. Number Sense

Substrand	Titles that Address the Substrand
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(Gr. 3) A. Develop and apply the concept of place value (e.g., base-10 blocks, bundles of 10s, place value mats to represent 4-digit numbers).

Quarter Mile Math Level 1

(Gr. 3) B. Read, write, model, compare, and order whole numbers up to 4 digits (e.g., base-10 blocks).

Quarter Mile Math Level 1

(Gr. 3) C. Write the expanded form of 2-, 3-, and 4-digit numerals (e.g., $7,503 = 7,000 + 500 + 0 + 3$).

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematics Content Skills

Strand: III. Number Operations And Computation

Substrand	Titles that Address the Substrand
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(Gr. 3) C. Explain and develop understanding of basic multiplication and division algorithms (e.g., show 3 groups with 4 blocks in each group to demonstrate 3×4 and $12/3$ or $12/4$).

Quarter Mile Math Level 1

(Gr. 3) D. Describe relationships between addition/multiplication and subtraction/division (e.g., multiplication as repeated addition, division as repeated subtraction).

Quarter Mile Math Level 1

(Gr. 3) E. Solve problems involving money that require addition and subtraction.

Quarter Mile Math Level 2

Grades 4 - 4

Subject: MATH

Standard: Mathematics Content Skills

Strand: I. Patterns

Substrand	Titles that Address the Substrand
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(Gr. 4) C. Evaluate simple expressions (e.g., if $a = 3$, $b = 2$, and $c = 1$, what is $a + b - c$?).

Quarter Mile Math Level 2

Subject: MATH
Standard: Mathematics Content Skills
Strand: II. Number Sense

Substrand Titles that Address the Substrand

(Gr. 4) A. Use knowledge of place value to model, describe, and record whole numbers and decimals to tenths and hundredths (e.g., place value mats and counters, money, base-10 blocks to play a trading game, number lines, calculators, computers).

Quarter Mile Math Level 2

(Gr. 4) B. Read, write, rename, model, compare, and order whole numbers through 6 digits (e.g., base-10 blocks, number lines, pictures of shaded regions of two- or three-dimensional figures).

Quarter Mile Math Level 2

(Gr. 4) C. Represent, compare, and order decimals to 100ths (e.g., build 2 numbers with base-10 blocks on a place value mat and compare).

Quarter Mile Math Level 2

(Gr. 4) D. Write the expanded form of 5- and 6-digit numerals (e.g., $367,503 = 300,000 + 60,000 + 7,000 + 500 + 0 + 3$).

Quarter Mile Math Level 2

(Gr. 4) E. Apply estimation skills when adding and subtracting fractions with like denominators and decimals of the same place value (e.g., determine that $7/8 + 5/8$ must be more than one since both are more than $1/2$).

Quarter Mile Math Level 2

Subject: MATH
Standard: Mathematics Content Skills
Strand: III. Number Operations And Computation

Substrand Titles that Address the Substrand

(Gr. 4) A. Develop fluency with single-digit multiplication facts and their related division facts.

Quarter Mile Math Level 2

(Gr. 4) B. Use multiplication and division facts to compute related problems (e.g., 30×5 , 300×5 , 3×50).

Quarter Mile Math Level 2

(Gr. 4) C. Develop multiplication and division algorithms (e.g., use physical materials, show multiplication as repeated addition, as a geometric array, as the inverse of division, ask students to explain why certain steps in an algorithm work).

Quarter Mile Math Level 2

(Gr. 4) D. Apply a variety of estimation and mental math techniques to simplify computations (e.g., add or subtract by 10s or multiply by 100).

Quarter Mile Math Level 2

(Gr. 4) E. Develop benchmarks (e.g., 0, $1/2$, and 1; 0, .5, and 1) for fractions and decimals and place them on a number line.

Quarter Mile Math Level 2

(Gr. 4) F. Demonstrate equivalent fractions using physical models and pictures of fraction models.

Quarter Mile Math Level 2

(Gr. 4) G. Create models of like and unlike fractional parts to be combined or subtracted (e.g., egg cartons, fraction strips, circles, and squares).

Quarter Mile Math Level 2

Grades 5 - 5

Subject: MATH

Standard: Mathematics Content Skills

Strand: I. Patterns

Substrand **Titles that Address the Substrand**

(Gr. 5) B. Simulate algebraic problem-solving techniques (e.g., use a balance to model an equation and show how subtracting a number from one side requires subtracting the same amount from the other side).

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematics Content Skills

Strand: II. Number Sense

Substrand **Titles that Address the Substrand**

(Gr. 5) A. Use the structure of fraction and decimal number systems through 1000ths to solve problems (e.g., technology, models, drawings).

Quarter Mile Math Level 2

(Gr. 5) B. Compare, convert, and order common fractions and decimals to 100ths place.

Quarter Mile Math Level 2

(Gr. 5) C. Represent with models the connection between fractions, decimals, and percents and be able to convert from one representation to another (e.g., use 10 x 10 grids, base-10 blocks, paper folding).

Quarter Mile Math Level 2

(Gr. 5) D. Explain verbally and with manipulatives and diagrams 25%, 50%, 75%; use these percents to solve problems and relate them to their corresponding fractions and decimals.

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematics Content Skills

Strand: III. Number Operations And Computation

Substrand **Titles that Address the Substrand**

(Gr. 5) A. Multiply and divide whole numbers and decimals with 2-digit multipliers or divisors.

Quarter Mile Math Level 2

(Gr. 5) B. Develop estimation and computational skills in adding and subtracting decimals with different place values.

Quarter Mile Math Level 2

(Gr. 5) C. Use whole number, fraction, decimal, or common percent estimates in practical, everyday situations (e.g., 50% off means 1/2 off the cost).

Quarter Mile Math Level 2

Grades 6 - 6

Subject: MATH

Standard: Mathematics Content Skills

Strand: I. Patterns, Functions, And Algebra

Substrand Titles that Address the Substrand

(Gr. 6) E. Apply the order of operations and note the applications to calculators.

Quarter Mile Math Level 2

(Gr. 6) F. Demonstrate the concepts of Greatest Common Factor (GCF) and Least Common Multiple (LCM) using factor trees and prime factorization.

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematics Content Skills

Strand: II. Number Sense

Substrand Titles that Address the Substrand

(Gr. 6) A. Develop estimation and computation skills with fractions (e.g., manipulatives, sets of objects, paper folding, fraction strips, 10 x 10 grids, number lines, area models, paper and pencil).

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) B. Compare and simplify fractions and name equivalent fractions in a variety of ways.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) C. Choose appropriate representations from among whole numbers, fractions, decimals, and percents (e.g., 15% for discount, $\frac{3}{20}$ for probability, \$.15 for money).

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) D. Identify and apply equivalent fractions, decimals, and percent values for common fractions: halves, thirds, fourths, fifths, and tenths.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) E. Convert, compare, and order decimals (terminating and nonterminating), fractions, and percents using a variety of methods.

Quarter Mile Math Level 2

(Gr. 6) F. Estimate solutions to multistep problems using decimals, fractions, and percents and determine whether solutions are reasonable (e.g., use appropriate estimation strategies such as front end, rounding; use number sense to determine reasonableness of results).

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematics Content Skills

Strand: III. Operations

Substrand Titles that Address the Substrand

(Gr. 6) A. Add, subtract, multiply, and divide fractions.

Quarter Mile Math Level 2

(Gr. 6) B. Apply the basic arithmetic operations to fractions, decimals, and percents in problem solving situations.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematics Content Skills

Strand: VI. Data Analysis And Statistics

Substrand **Titles that Address the Substrand**

(Gr. 6) C. Interpret a set of data using mean, median, mode, and range in a variety of contexts.

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematics Process Skills

Strand: I. Problem Solving

Substrand **Titles that Address the Substrand**

(Gr. 6-8) A. Develop and test strategies to solve practical, everyday problems which may have single or multiple answers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6-8) D. Evaluate results to determine their reasonableness.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6-8) E. Apply a variety of strategies (e.g., restate the problem, look for a pattern, diagrams, solve a simpler problem, work backwards, trial and error) to solve problems, with emphasis on multistep and nonroutine problems.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematics Process Skills

Strand: V. Representations

Substrand **Titles that Address the Substrand**

(Gr. 6-8) B. Use representations to promote the communication of mathematical ideas (e.g., number lines, rectangular coordinate systems, scales to illustrate the balance of equations).

Quarter Mile Math Level 3

Grades 7 - 7

Subject: MATH

Standard: Mathematics Content Skills

Strand: I. Patterns: Algebraic Expressions And Equations

Substrand **Titles that Address the Substrand**

(Gr. 7) B. Simplify and evaluate algebraic expressions (e.g., if $x = -5$ evaluate $2x$).

Quarter Mile Math Level 3

(Gr. 7) C. Identify, explain, and apply the commutative, associative, distributive, inverse and identity properties (e.g., $n + 0 = n$, $2(x + 3) = 2x + 6$).

Quarter Mile Math Level 3

(Gr. 7) D. Solve simple linear equations (e.g., use properties, graph ordered pairs with paper and pencil, use graphing calculators).

Quarter Mile Math Level 3

(Gr. 7) F. Apply the order of operations and test calculators to see whether it has been included (e.g., simplify expressions, determine which calculators follow the proper order of operations).

Quarter Mile Math Level 3

Grades 8 - 8

Subject: MATH

Standard: Mathematics Content Skills

Strand: I. Number Sense

Substrand

Titles that Address the Substrand

(Gr. 8) A. Rational Numbers 1. Represent, rename, compare, and order rational numbers (positive and negative integers, fractions, decimals) and justify their use in real-life situations (e.g., use number lines, two- and three-dimension regional models). 2. Use the basic operations on rational numbers to solve problems (e.g., describe the effect of multiplying whole numbers by a fraction or a decimal less than 1).

Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematics Content Skills

Strand: IV. Data Analysis And Statistics

Substrand

Titles that Address the Substrand

(Gr. 8) B. Explain the mean, its sensitivity to extremes, and its use in comparison with the median and mode.

Quarter Mile Math Level 2

Grades 9 - 12

Subject: MATH

Standard: Algebra I

Strand: I. Number Sense/algebraic Operations

Substrand

Titles that Address the Substrand

(Gr. 9-12) C. Simplify and evaluate expressions including: 1. linear (one and two variables) 2. absolute value 3. rational 4. radical

Quarter Mile Math Level 3

Subject: MATH

Standard: Mathematics Process Skills

Strand: I. Problem-solving

Substrand

Titles that Address the Substrand

(Gr. 9-12) A. Apply a wide variety of problem-solving strategies (identify a pattern, use equivalent representations) to solve problems from within and outside mathematics.

Quarter Mile Math Level 3

(Gr. 9-12) B. Identify the problem from a described situation, determine the necessary data and apply appropriate problem-solving strategies.

Quarter Mile Math Level 3