THE QUARTER MILE MATH

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

Grades K - 4
Subject: MATH
Standard: Students Demonstrate Understanding Of And An Ability To Use Numbers And Operations.
Strand: An understanding of numbers and how they are used is necessary in the everyday world. Computational skills and procedures should be developed in context so the learner perceives them as tools for solving problems.

Substrand   Titles that Address the Substrand

(Gr. K-4) 1. Exhibit connections between the concrete and symbolic representation of a problem or concept.
> **Quarter Mile Math Level 1**
> **Quarter Mile Math Level 2**

(Gr. K-4) 2. use the number system by counting, grouping and applying place value concepts.
> **Quarter Mile Math Level 1**

(Gr. K-4) 3. model, explain, and use basic facts, the operations of addition and subtraction of whole numbers, and mental mathematics.
> **Quarter Mile Math Level 1**
> **Quarter Mile Math Level 2**

(Gr. K-4) 4. model and explain multiplication and division of whole numbers.
> **Quarter Mile Math Level 1**
> **Quarter Mile Math Level 2**

Subject: MATH
Standard: Students Demonstrate Understanding Of And An Ability To Use Patterns, Relations And Functions.
Strand: One of the central themes of mathematics is the study of patterns, relations, and functions. Exploring patterns helps students develop mathematical power and instills in them an appreciation for the beauty of mathematics.

Substrand   Titles that Address the Substrand

(Gr. K-4) 2. represent and describe mathematical and real-world relationships.
> **Quarter Mile Math Level 1**
> **Quarter Mile Math Level 2**

Subject: MATH
Standard: Students Engage In The Mathematical Processes Of Problem Solving And Reasoning, Estimation, Communication, Connections And Applications, And Using Appropriate Technology.
Strand: These processes are essential to all mathematics and must be incorporated in all other mathematics standards.

Substrand   Titles that Address the Substrand

(Gr. K-4) 2. apply estimation strategies throughout the problem-solving process.

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(Gr. K-4) 5. select and use appropriate technology to enhance mathematical understanding. Appropriate technology may include, but is not limited to, paper and pencil, calculator, and computer.

Quarter Mile Math Level 1
Quarter Mile Math Level 2

Subject: MATH
Standard: Students Use Algebraic Concepts, Processes, And Language To Model And Solve A Variety Of Real-world And Mathematical Problems.
Strand: Algebra is the language of mathematics and science. Through the use of variables and operations, algebra allows students to form abstract models from contextual information.

Substrand	**Titles that Address the Substrand**

(Gr. K-4) 2. Explore the use of variables and open sentences to express relationships (e.g., missing addend).

Quarter Mile Math Level 1
Quarter Mile Math Level 2

(Gr. K-4) 3. use inverse operations and other strategies to solve number sentences.

Quarter Mile Math Level 1
Quarter Mile Math Level 2

Grades 5 - 8
Subject: MATH
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Strand: An understanding of numbers and how they are used is necessary in the everyday world. Computational skills and procedures should be developed in context so the learner perceives them as tools for solving problems.

Substrand	**Titles that Address the Substrand**

(Gr. 5-8) 1. use the four basic operations with whole numbers, fractions, decimals, and integers.

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) 2. use mental mathematics and number sense in using order of operations, and order relations for whole numbers, fractions, decimals, and integers.

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) 3. use the relationships and applications of ratio, proportion, percent, and scientific notation.

Quarter Mile Math Level 2
Quarter Mile Math Level 3

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Strand: One of the central themes of mathematics is the study of patterns, relations, and functions. Exploring patterns helps students develop mathematical power and instills in them an appreciation for the beauty of mathematics.

Substrand	**Titles that Address the Substrand**

(Gr. 5-8) 3. analyze functional relationships to explain how a change in one quantity results in a change in another.

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) 4. use patterns and functions to represent and solve problems.
Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH
Standard: Students Engage In The Mathematical Processes Of Problem Solving And Reasoning, Estimation,
         Communication, Connections And Applications, And Using Appropriate Technology.
Strand: These processes are essential to all mathematics and must be incorporated in all other mathematics
         standards.

Substrand   **Titles that Address the Substrand**

(Gr. 5-8) 1. formulate and solve multi-step and nonroutine problems using a variety of strategies. Generalize methods to new problem situations.
Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) 2. select and apply appropriate estimation strategies throughout the problem-solving process.
Quarter Mile Math Level 2

(Gr. 5-8) 3. interpret and communicate mathematical ideas and logical arguments using correct mathematical terms and notations.
Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-12) 5. select and use appropriate technology to enhance mathematical understanding. Appropriate technology may include, but is not limited to, paper and pencil, calculator, computer, and data collection devices.
Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH
Standard: Students Use Algebraic Concepts, Processes, And Language To Model And Solve A Variety Of Real-
         world And Mathematical Problems.
Strand: Algebra is the language of mathematics and science. Through the use of variables and operations,
         algebra allows students to form abstract models from contextual information.

Substrand   **Titles that Address the Substrand**

(Gr. 5-8) 1. understand the concepts of variable, expression and equation.
Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) 3. recognize and use the general properties of operations (e.g., the distributive property).
Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 5-8) 4. solve linear equations using concrete, numerical and algebraic methods.
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Grades 9 - 12
Subject: MATH
Standard: Students Demonstrate Understanding Of And An Ability To Use Numbers And Operations.

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Strand: An understanding of numbers and how they are used is necessary in the everyday world. Computational skills and procedures should be developed in context so the learner perceives them as tools for solving problems.

Substrand   **Titles that Address the Substrand**

(Gr. 9-12) 1. use and understand the real number system, its operations, notations, and the various subsystems.
Quarter Mile Math Level 3

(Gr. 9-12) 2. use definitions and basic operations of the complex number system.
Quarter Mile Math Level 3

Subject: MATH
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Strand: One of the central themes of mathematics is the study of patterns, relations, and functions. Exploring patterns helps students develop mathematical power and instills in them an appreciation for the beauty of mathematics.

Substrand   **Titles that Address the Substrand**

(Gr. 9-12) 1. describe functions and their inverses using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.
Quarter Mile Math Level 3

Subject: MATH
Standard: Students Engage In The Mathematical Processes Of Problem Solving And Reasoning, Estimation, Communication, Connections And Applications, And Using Appropriate Technology.
Strand: These processes are essential to all mathematics and must be incorporated in all other mathematics standards.

Substrand   **Titles that Address the Substrand**

(Gr. 9-12) 2. select, apply, and evaluate appropriate estimation strategies throughout the problem-solving process.
Quarter Mile Math Level 2

(Gr. 9-12) 4. apply and translate among different representations of the same problem situation or of the same mathematical concept. Model connections between problem situations that arise in disciplines other than mathematics.
Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH
Standard: Students Use Algebraic Concepts, Processes, And Language To Model And Solve A Variety Of Real-world And Mathematical Problems.
Strand: Algebra is the language of mathematics and science. Through the use of variables and operations, algebra allows students to form abstract models from contextual information.

Substrand   **Titles that Address the Substrand**

(Gr. 9-12) 2. use basic operations with algebraic expressions.
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Quarter Mile Math Level 3

(Gr. 9-12) 3. solve algebraic equations and inequalities: linear, quadratic, exponential, logarithmic, and power.
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(Gr. 9-12) 4. solve systems of algebraic equations and inequalities, including use of matrices.

Quarter Mile Math Level 3