

Mathematics: Essential Learning Expectations:

Sixth Grade:

Content Standard 1: Number Sense and Operation – A student, applying reasoning and problem solving, will use number sense and operations to represent numbers in multiple ways, understand relationships among numbers and number systems, make reasonable estimates, and compute fluently within a variety of relevant cultural contexts, including those of Montana American Indians.

| Content Standard | Essential Learning Expectations | Vocabulary | |
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| 1.1 Whole Number Relationships: | A. Use a model to represent percent. B. Convert between fractions and decimals in order to solve problems. | terminating decimal, repeating decimal | |
| 1.2 Estimation and Operations: | A. Use estimation strategies to judge the reasonableness of operations on fractions and decimals. B. Use correct order of operations with whole number with no more than one level of parentheses. | | |
| 1.3 Whole Number Concepts: | A. Solve problems using least common multiple and greatest common factor and check the reasonableness of the solution. | least common multiple, greatest common factor | |
| 1.4 Common Fractions and Decimals | A. Justify strategies for multiplying and dividing fractions, mixed numbers and decimals. B. Multiply and divide | order of operations, distributive property, parentheses | |

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| | <p>fractions fluently. C. Solve contextual problems using multiplication and division of fractions and decimals.</p> | | |
| <p>1.5 Length, Time, and Temperature:</p> | <p>A. Compare and convert units of measure within the same system of measurement, including length, capacity, mass and time; and label appropriately. B. Use scientific and cultural situations, including those of Montana American Indians, to solve measurement problems.</p> | <p>kilometer</p> | |
| <p>1.6 Proportional Reasoning:</p> | <p>A. Identify ratios (part-part, part-whole, rates as ratios) and unit rates in various contexts. B. Write equivalent ratios using multiplication or division strategies. C. Use multiplicative reasoning to solve ratio and rate problems and explain the answer (e.g., Terry can run 4 laps in 12 minutes, and Susan can run 2 laps in 5 minutes, who is the faster runner?).</p> | <p>ratio, rate, unit rate, ratio table</p> | |

Content Standard 2: Data Analysis Mathematics – A student, applying reasoning and problem solving, will use data representation and analysis, simulations, probability, statistics, and statistical methods to evaluate information and make informed decisions within a variety of relevant cultural contexts, including those of Montana American Indians.

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| <p>2.1 Representing Data:</p> | <p>A. Use the appropriate representation of data collected from a variety of contexts (e.g., science, history, and culture, including those of Montana American Indians).</p> | | |
| <p>2.2 Evaluating Data:</p> | <p>A. Interpret and analyze one set of data using measures of center (median, mean, mode) and variability (maximum, minimum, range).</p> | <p>mean, measures of central tendency, measures of center</p> | |
| <p>2.3 Likelihood of Events:</p> | <p>A. Determine the experimental probability of two independent events using a simple experiment (e.g., probability of outcomes when rolling a six-sided die twice). B. Determine the theoretical probability of two independent events by using a tree diagram, list, or table (e.g., flip a coin and roll a die).</p> | <p>trial, tree diagram, sample space</p> | |

Content Standard 3: Geometric Reasoning – A student, applying reasoning and problem solving, will understand geometric properties, spatial relationships, and transformation of shapes, and will use spatial reasoning and geometric models to analyze mathematical situations within a variety of relevant and cultural contexts, including those of Montana American Indians.

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| 3.1 Two-Dimensional Attributes | A. Describe and compare a variety of pyramids and prisms (e.g., pentagonal, hexagonal). B. Decompose a prism and pyramid into a net and compose a net into a prism or pyramid. C. Draw orthogonal views of a three-dimensional block structure. | | |
| 3.2 Three-Dimensional Attributes | Congruence and Similarity for this Benchmark addressed in Grade 7 | | |
| 3.3 Basic Transformations: | ELE for this Benchmark addressed in Grade 7 | | |
| 3.4 Linear Measurement: | A. Use area and volume formulas to solve problems with decimal and fractional dimensions. B. Solve for the unknown piece of information regarding areas of rectangles, parallelograms and triangles or volume of rectangular prisms. | | |
| 3.5 Area and Perimeter: | A. Use models to determine and justify a formula for the volume of a rectangular prism. B. Use models to | | |

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| | determine and justify a formula for the circumference of a circle (e.g., the ratio of circumference to diameter equals pi). | | |
| Content Standard 4:Algebraic and Functional Reasoning – A student, applying reasoning and problem solving, will use algebraic concepts and procedures to understand processes involving number, operation, and variables and will use procedures and function concepts to model the quantitative and functional relationships that describe change within a variety of relevant cultural contexts, including those of Montana American Indians. | | | |
| 4.1 Patterns and Relations: | A.Describe patterns and relationships using words, tables, graphs, diagrams, and mathematical sentences. B. Demonstrate fluency between two various representations (tables, graphs, verbal descriptions, symbolic expressions) of a linear pattern. | | |
| 4.2 Symbols and Expressions | A. Use tables and graphs to describe a functional relationship between two quantities. | equations, expressions | |
| 4.3 Properties of Number and Operation | A. Write and evaluate mathematical expressions and equations for a given situation. B. Solve and justify one-step equations using number sense and properties of operations. | commutative property, associative property, additive identity, multiplicative identity, inverse operations | |
| 4.4 Equivalent Expressions: | A. Apply the commutative, associative, | | |

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| | distributive properties and order of operations to show that two numeric expressions are equivalent. | | |
| 4.5 Numerical Modeling with Manipulatives: | ELE for this Benchmark addressed in Grade 7 | | |