

Mathematics: Essential Learning Expectations:

Fourth 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	
1.1 Whole Number Relationships:	A. Represent, read, compare and order numbers to 100,000.		
1.2 Estimation and Operations:	A. Estimate sums, differences, products, and quotients when solving contextual problems. B. Recall basic multiplication facts to products up to 100 and related division facts. C. Apply a successful strategy for multiplying whole numbers up to 3-digit factors by 2-digit factors with fluency and check reasonableness of the answer. D. Use invented strategies, concrete materials, numberlines, and contextual clues to divide 2-digit dividends by 1-digit divisors.	approximate	

1.3 Whole Number Concepts:

- A. Use mental math strategies to solve multiplication problems.**
- B. Use models, properties and place value strategies to illustrate and justify multiplication for three-digit factors by 2-digit factors with fluency and check reasonableness of the answer.**
- C. Use invented strategies, concrete materials, numberlines, and contextual clues to divide 2-digit dividends by 1-digit divisors.**

multiples, factors

1.4 Common Fractions and Decimals

- A. Use models to identify equivalent symbolic representations of improper fractions and mixed numbers.**
- B. Model decimals using various concrete materials and pictorial representations.**
- C. Read and write decimal notation to 0.001 and explain the connection to the place value system.**
- D. Make connections using models, fraction notation, and decimal notation to represent equivalence.**

improper fraction, mixed number, decimal, decimal point, hundredths, thousandths

1.5 Length, Time, and Temperature:	A. Determine the amount of elapsed time. B. Use the appropriate tools to collect time, temperature, and length data for daily life and science/cultural contexts; including that of Montana American Indians.	elapsed time, temperature, thermometer, degrees, Celsius, Fahrenheit	
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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.

2.1 Representing Data:	A. Collect, organize and represent data using a bar graph and stem-and-leaf plot.	stem-and-leaf plot	
2.2 Evaluating Data:	A. Analyze frequency tables, bar graphs, pictographs, dot plots (line plots), and stem-and-leaf plots to solve problems and make decisions pertaining to daily life, science, and culture; including that of Montana American Indians.	frequency tables, bar graphs	
2.3 Likelihood of Events:	ELE for this Benchmark addressed in Grade 3.		

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.

3.1 Two-Dimensional Attributes	A. Model and identify area as an attribute of a two-dimensional shape using concrete tools (e.g., manipulatives and grid paper).		
3.2 Three-Dimensional Attributes	ELE for this Benchmark addressed in Grade 3		
3.3 Basic Transformations:	A. Identify and create slides and flips of congruent figures within artistic and cultural contexts, including those of Montana American Indians. B. Design and analyze simple tilings and tessellations within artistic and cultural contexts, including those of Montana American Indians.		
3.4 Linear Measurement:	A. Label and select appropriate unit of measurement and measurement tools to determine the length of objects. B. Use meters, feet, and yards to estimate and to measure length of an object.		
3.5 Area and Perimeter:	A. Make a logical argument for a square as the standard unit of measurement for area. B. Select appropriate units, strategies and	area, formula, square unit of measurement (cm², m², in.², ft.², yd.²)	

	<p>tools for solving problems that involve estimating or measuring area of common polygons.</p> <p>C. Develop and justify the formula for the area of a rectangle.</p>		
<p>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.</p>			
<p>4.1 Patterns and Relations:</p>	<p>A. Generalize a numeric and geometric pattern by writing a rule using words and/or symbols.</p>	rule	
<p>4.2 Symbols and Expressions</p>	<p>A. Create simple expressions or equations using letters, boxes, or symbols to represent numbers.</p>		
<p>4.3 Properties of Number and Operation</p>	<p>A. Use models to represent the distributive property.</p> <p>B. Use the distributive property to multiply.</p>		
<p>4.4 Equivalent Expressions:</p>	<p>A. Express equivalence of numerical expressions in a variety of ways.</p>		
<p>4.5 Numerical Modeling with Manipulatives:</p>	<p>A. Model numeric problems and contextual situations including those of Montana American Indians using multiple</p>		

**representations to
draw conclusions.**