Montana Math

Grade 4

Operations and Algebraic Thinking MT.4.OA

1. Interpret a multiplication equation as a multiplicative comparison, and represent verbal statements of multiplicative comparisons as multiplication equations. MT.4.OA.1
2. Multiply or divide to solve problems in context that involve multiplicative comparison and distinguish multiplicative comparison from additive comparison. MT.4.OA.2
3. Solve multistep problems in context with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted, represent these problems using equations with a letter standing for the unknown quantity, and assess the reasonableness of answers using mental computation and estimation strategies. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities. MT.4.OA.3
4. Find all factor pairs for a whole number in the range 1-100, recognize that a whole number is a multiple of each of its factors, determine whether a given whole number in the range 1-1000 is a multiple of a given one-digit number, and determine whether a given whole number in the range 1-100 is prime or composite. MT.4.OA.4
5. Analyze a number or shape pattern that follows a given rule, identify and explain informally features of the pattern that were not explicit in the rule itself, generate terms in the resulting sequence, and observe the pattern. MT.4.OA.5

Number and Operations in Base Ten MT.4.NBT

1. Recognize that in a multi-digit whole number, each place represents ten times the place to its right. MT.4.NBT.1
2. Read and write multi-digit whole numbers using standard form, word form, and expanded form and compare two multi-digit numbers based on the value of the digits in each place using >, =, and < symbols. MT.4.NBT.2
3. Use place value understanding to round multi-digit whole numbers to any place. MT.4.NBT.3
4. Accurately and efficiently add and subtract multi-digit whole numbers using the standard algorithm. MT.4.NBT.4
5. Multiply a whole number of up to four digits by a one-digit whole number, multiply two two-digit numbers, flexibly using strategies based on place value and

the properties of operations, and illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. MT.4.NBT.5

6 **Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, flexibly using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division, and illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.** MT.4.NBT.6

Number and Operations - Fractions MT.4.NF

1 **Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models and use this principle to recognize and generate equivalent fractions.** MT.4.NF.1

2 **Compare two fractions with different numerators and different denominators by creating common denominators or numerators, or by comparing to a benchmark fraction, recognize that comparisons are valid only when the two fractions refer to the same whole, record the results of comparisons with symbols >, =, or <, and justify the conclusions.** MT.4.NF.2

3 **Understand a fraction a/b with a > 1 as a sum of fractions 1/b by:** MT.4.NF.3

- a *Understand a fraction a/b with a > 1 as a sum of fractions 1/b by* understanding addition and subtraction of fractions as joining and separating parts referring to the same whole. MT.4.NF.3.A
- b *Understand a fraction a/b with a > 1 as a sum of fractions 1/b by* decomposing a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. MT.4.NF.3.B
- c *Understand a fraction a/b with a > 1 as a sum of fractions 1/b by* adding and subtracting mixed numbers with like denominators by replacing each mixed number with an equivalent improper fraction or other efficient strategies. MT.4.NF.3.C
- d *Understand a fraction a/b with a > 1 as a sum of fractions 1/b by* solving problems in context that involve addition and subtraction of fractions referring to the same whole or having like denominators. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities. MT.4.NF.3.D

4 **Apply and extend previous understandings of multiplication to multiply a fraction by a whole number by:** MT.4.NF.4

- a *Apply and extend previous understandings of multiplication to multiply a fraction by a whole number by* understanding a fraction a/b as a multiple of 1/b and recording the conclusion by the equation a/b = a*(1/b). MT.4.NF.4.A
- b *Apply and extend previous understandings of multiplication to multiply a fraction by a whole number by* understanding a multiple of a/b as a multiple of 1/b, using this to multiply a fraction by a whole number and recognizing n × (a/b) = (n × a)/b). MT.4.NF.4.B

c *Apply and extend previous understandings of multiplication to multiply a fraction by a whole number by* solving problems in context involving multiplication of a fraction by a whole number. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities. MT.4.NF.4.C

5 **Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.** MT.4.NF.5

6 **Use decimal notation for fractions with denominators 10 or 100.** MT.4.NF.6

7 **Compare two decimals to hundredths by reasoning about their size, recognize that comparisons are valid only when the two decimals refer to the same whole, record the results of comparisons with the symbols >, =, or <, and justify the conclusions.** MT.4.NF.7

Measurement and Data MT.4.MD

1 **Know relative sizes of units within one system of measurement and within the system, express measurements of a larger unit in terms of a smaller unit.** MT.4.MD.1

2 **Use the four operations to solve problems in context using distances, intervals of time, liquid volumes, masses of objects, and money, including problems with simple fractions or decimals and problems that require expressing measurements given in a larger unit in terms of a smaller unit, and represent measurement quantities using diagrams that feature a measurement scale. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.** MT.4.MD.2

3 **Apply the area and perimeter formulas for rectangles including problems in context.** MT.4.MD.3

4 **Make a line plot to display a data set of measurements in fractions of a unit and solve problems involving addition and subtraction of fractions by using information presented in line plots.** MT.4.MD.4

5 **Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint and understand concepts of angle measurement by:** MT.4.MD.5

a *Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint and understand concepts of angle measurement by* understanding that an angle is formed by two rays with a common endpoint at the center of a circle that measures a total of 360 degrees, and a single-degree unit measure is equal to 1/360th of the circle, and MT.4.MD.5.A

b *Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint and understand concepts of angle measurement by* understanding that an angle that turns through n one-degree angles is said to have an angle measure of n degrees. MT.4.MD.5.B

6 **Measure angles in whole-number degrees using a protractor and sketch angles of specified measure.** MT.4.MD.6

7 **Recognize angle measure as additive. When an angle is decomposed into nonoverlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram including problems in context.** MT.4.MD.7

Geometry MT.4.G

1 **Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines and identify these in two-dimensional figures.** MT.4.G.1

2 **Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size, recognize right triangles as a category, and identify right triangles.** MT.4.G.2

3 **Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts, identify line-symmetric figures, and draw lines of symmetry. This standard should incorporate designs and cultural context relating to Montana Indigenous Peoples and local communities.** MT.4.G.3