North Dakota Mathematics Standards

Grade 4

Adopted 2023

Fourth Grade

Math Attributes

Problem-Solving

P. Learners can develop and carry out a logical plan to problem-solve situations, reflect on the reasonableness of solutions, and explore alternate strategies with guidance. 4.MA.P

Connections

C. Learners can make connections and summarize related ideas using supporting evidence. 4.MA.C

Reasoning and Proof

R. Learners can reason logically based on experience and knowledge, citing evidence to support their reasoning and conclusions. 4.MA.R

Number and Operations

Counting and Cardinality

1. Read numbers to the millions place, including word, standard, and expanded form. Write numbers to the millions place, including standard and expanded form. 4.NO.CC.1

Base Ten

1. Understand that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. 4.NO.NBT.1
2. Compare two numbers to the millions place and decimals to the hundredths place, using symbols >, <, and =. Justify comparisons based on the value of the digits. 4.NO.NBT.2
3. Apply place value understanding to round multi-digit whole numbers to any place. 4.NO.NBT.3
4. Add and subtract multi-digit whole numbers to the one millions place using strategies, including the algorithm. 4.NO.NBT.4
5. Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers. Show and justify the calculation using equations, rectangular arrays, and models. 4.NO.NBT.5
6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using place value strategies. Show and justify the calculation using equations, rectangular arrays, and models. 4.NO.NBT.6

Fractions

1. Express equivalent fractions with a denominator of 10 and a denominator of 100 to generate a decimal notation. 4.NO.NF.1
2. Explain and demonstrate how a mixed number is equivalent to a fraction greater than one and how a fraction greater than one is equal to a mixed number using visual fraction models and reasoning strategies (proper and improper fractions limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100). 4.NO.NF.2
3. Generate equivalent fractions using numerical representations, visual representations, and number lines (proper and improper fractions limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100). 4.NO.NF.3
4. Demonstrate how equivalent fractions are generated by multiplying a fraction equivalent to 1 or the properties of multiplication (proper and improper fractions limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100). 4.NO.NF.4
5. Compare and order fractions having, unlike numerators or denominators. Record comparisons using the symbols >, <, and =. Justify using a visual fraction model (proper and improper fractions limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100). 4.NO.NF.5
6. Solve authentic word problems by adding and subtracting fractions and mixed numbers with like denominators (proper and improper fractions limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100). 4.NO.NF.6

7. Solve problems by multiplying fractions and whole numbers using visual fraction models (proper and improper fractions limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100). 4.NO.NF.7

Algebraic Reasoning

Operations and Algebraic Thinking (OA)

1. Automatically multiply and divide through 10 x 10. 4.AR.OA.1
2. Identify and apply the properties of operations for addition, subtraction, multiplication, and division and justify thinking. 4.AR.OA.2
3. Solve multi-step authentic word problems using the four operations, including problems with interpreted remainders. Represent problems using equations, including a symbol as an unknown. 4.AR.OA.3
4. Find factor pairs and multiples within the range of 1-36 while classifying numbers as prime or composite. 4.AR.OA.4
5. Interpret multiplication equations as a comparison. Represent multiplicative comparisons as multiplication equations. 4.AR.OA.5
6. Generate a number or shape pattern that follows a given rule while identifying apparent features of the pattern that were not explicit in the rule itself. (e.g., Given a rule "add 3" and the starting number of 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers.) 4.AR.OA.6

Geometry and Measurement

Geometry

1. Identify, label, and draw points, lines, line segments, rays, and angles (right, acute, obtuse). 4.GM.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 specified size. 4.GM.G.2
3. Draw lines of symmetry in two-dimensional figures. 4.GM.G.3

Measurement

1. Know the relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb., oz.; l, ml; hr., min., sec. Record measurement equivalents in a two-column table. 4.GM.M.1
2. Generate simple conversions from a larger unit to a smaller unit to solve authentic problems within a single system of measurement, both customary and metric systems. 4.GM.M.2
3. Identify and use the appropriate tools, operations, and units of measurement, both customary and metric, to solve problems involving time, length, weight, mass, and capacity. 4.GM.M.3
4. Solve authentic word problems involving dollar bills, quarters, dimes, nickels, and pennies using $ and ¢ symbols and decimal notation appropriately. 4.GM.M.4
5. Apply the area and perimeter formulas for rectangles, including connected rectangular figures, in problems. 4.GM.M.5
6. Measure angles in whole-number degrees using a protractor. Using a protractor and ruler, draw angles of a specified measure. 4.GM.M.6
7. Recognize angle measures as additive and solve addition and subtraction problems to find unknown angles on a diagram. 4.GM.M.7

Data, Probability, and Statistics

Data

1. Formulate questions to collect, organize, and represent data to reason with math and across disciplines. 4.DPS.D.1
2. Generate data and create line plots to display a data set of unit fractions (½, ¼, ⅛). Solve problems involving addition and subtraction of fractions by using information presented in line plots. 4.DPS.D.2
3. Utilize graphs and diagrams to represent and solve authentic word problems using the four operations involving whole numbers, benchmark fractions, and decimals. 4.DPS.D.3